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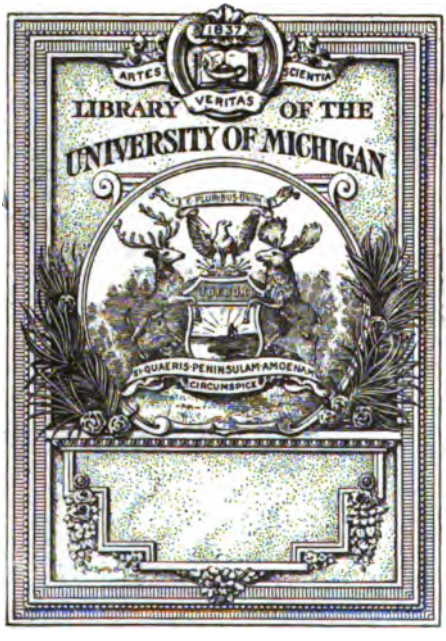

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No. 212: General Series, No. 110

UNIVERSITY OF WISCONSIN

CATALOGUE

1907-1908

MADISON
Published by the University
May, 1908

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THE

UNIVERSITY OF WISCONSIN

CATALOGUE

1907-1908

MADISON
1908

Issued bi-monthly, and entered as second class matter at the postoffice, at Madison, Wisconsin

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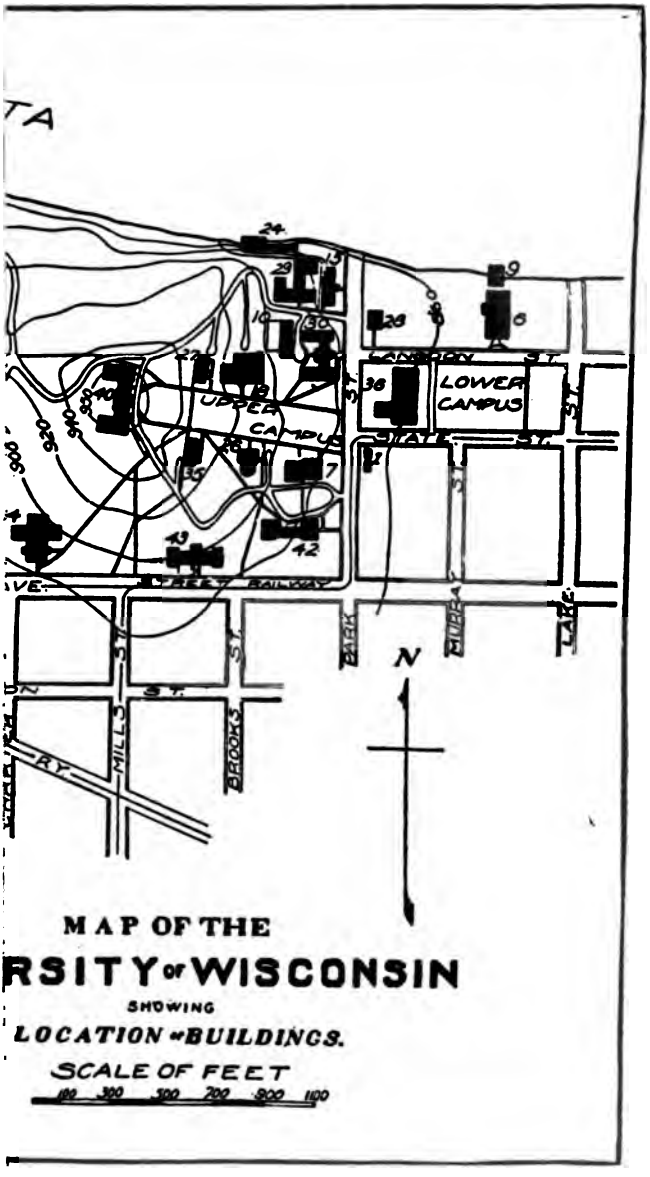

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CALENDAR

1907			
Sept.	24-25	Tu.-Wed.	Registration days.
Sept.	24-25	Tu.-Wed.	Examinations for admission.
Sept.	26	Thursday	Lectures and recitations begin.
Nov.	28	Thursday	Thanksgiving Day: legal holiday.
Dec.	21	Sat. eve.	Christmas recess begins.
1908			
Jan.	3	Friday	Exercises resumed.
Feb.	3-12	Mon.-Wed.	Final examinations, first semester.
Feb.	17	Monday	Lectures and recitations begin.
Feb.	22	Saturday	Washington's birthday: legal holiday.
April	16-20	Th.-Mon.	Easter recess.
May	30	Saturday	Decoration Day: legal holiday.
June	6-12	Sat.-Fri.	Final examinations, second semester.
June	11-12	Th.-Fri.	Examinations for admission.

Commencement Week

June	14	Sunday	Baccalaureate Address.
June	15	Monday	Class Day Exercises.
June	16	Tuesday	Alumni Day.
June	17	Wednesday	Commencement Day.

Summer Session

June	22	Monday	Summer Session opens.
Aug.	1	Saturday	Summer Session closes.

THE ACADEMIC YEAR 1908–09

1908			
Sept.	29-30	Tu.-Wed.	Registration days.
Sept.	29-30	Tu.-Wed.	Examinations for admission.
Oct.	1	Thursday	Lectures and recitations begin.
Nov.	26	Thursday	Thanksgiving Day: legal holiday.
Dec.	23	Wed. eve.	Christmas recess begins.

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1909

Jan.	5	Tuesday	Exercises resumed.
Feb.	8-17	Mon.-Wed.	Final examinations, first semester.
Feb.	18-19	Th.-Fri.	Registration days.
Feb.	22	Monday	Washington's birthday: legal holiday.
Feb.	23	Tuesday	Lectures and recitations begin.
April	8-12	Th.-Mon.	Easter recess.
May	30	Sunday	Decoration Day: legal holiday.
June	12-18	Sat.-Fri.	Final examinations, second semester.
June	17-18	Th.-Fri.	Examinations for admission.
June	20-23	Sun.-Wed.	Commencement Week.

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1907-1908

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*Died November 17, 1907.
†On leave of absence for the first semester, 1907-08.

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†Appointed December 2, 1907.

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*Resigned November 27, 1907.
†Appointed December 2, 1907.

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THE UNIVERSITY OF WISCONSIN

INTRODUCTION

HISTORICAL SKETCH

The University of Wisconsin was founded in the pioneer days of the State. In the first year of the existence of the territory (1836), an act was passed for the establishment of "Wisconsin University" at Belmont; but, except for the naming of trustees, the project was never carried out. In 1837, another act to establish the "Wisconsin University of Green Bay" resulted in the formation of a temporary local college called Hobart University. It was in 1838 that the University of the Territory of Wisconsin was provided for by law, and endowed by the act of Congress in the same year, with the customary grant of two townships of land. Its governing body, a Board of Visitors, was the only evidence of the existence of this institution.

In 1848, section 6 of the constitution of the new state declared that "Provision shall be made by law for the establishment of a state university, at or near the seat of the state government, and for connecting with the same from time to time such colleges in different parts of the state as the interests of education may require." The land grants of the United States for the support of the University were made a perpetual fund for its support, and it was provided that no sectarian instruction should be allowed in the institution. The University was incorporated by the act of July 26, 1848, and a board of regents, to be chosen by the legislature, was made its governing body. At the first meeting of this board, October 7, 1848, a preparatory department was established, to open in February, 1849, under the charge of John W. Sterling, a graduate of the University of New Jersey (Princeton). The site for the University, on "College Hill," was selected, and John H. Lathrop, a graduate, and afterwards a tutor, of Yale College, was called from the presidency of the University of Missouri to be-

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come Chancellor. He was formally inaugurated January 16, 1850. North Hall, the first building, was constructed in the same year, and opened September 17, 1851. The first class, consisting of Levi Booth and Charles T. Wakeley, graduated on July 26, 1854. At this time the faculty consisted of Chancellor Lathrop, occupying the chair of ethics, civil polity, and political economy, Professor Sterling, who taught mathematics, natural philosophy, and astronomy, Obadiah M. Conover, professor of ancient languages and literature, and Stephen H. Carpenter, tutor. The attendance was forty-one, exclusive of fifteen students in the preparatory course. Under Chancellor Lathrop, the group of buildings was increased by South Hall, completed in 1855, and University Hall, completed in 1859. Congress granted Wisconsin, in 1854, a second two townships of land for the University, but this, as well as the first grant, was sacrificed at low prices to attract immigration. Thus the income from the University fund was very small. Moreover, the State required the regents to construct their buildings by loans drawn from the same land fund instead of providing them by state bounty. Until 1870, the University struggled along on the meager income furnished by the lands donated by the federal government. The State made its higher education subordinate to the demand of its citizens for cheap lands.

The University in these years was criticised because of its preparatory department, and because of the alleged narrowness of the curriculum. It was demanded that "a more distinct bias should be given to its instructions in the direction of the several arts and avocations as they exist among men." In 1858, as the outcome of these demands, the preparatory department was restricted in its scope, and the University was reorganized into a department of science, literature, and the arts, consisting of six schools: philosophy, philology, natural science, civil and mechanical engineering, agriculture, and polity.

Chancellor Lathrop was succeeded in 1859 by Henry Barnard, a graduate of Yale, prominent in the reorganization of the schools of Connecticut and Rhode Island, founder of the *American Journal of Education*, and (1867) first national Commissioner of Education. His policy centered in elevating the public school system of the state as a basis for university growth, but ill health caused his resignation in 1860.

Under the *ad interim* direction of Professor Sterling, the University remained without a chancellor until 1867. The Civil War

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took a large proportion of the students into the field, and no commencement was held in 1864, all but one of the senior class having joined the army.

The close of the war brought a new inspiration and growth to the University. The returning soldiers took up their studies, and by 1870 the University had nearly 500 students. A reorganization was effected in 1866, and Dr. Paul A. Chadbourne, a graduate of Williams College, was called to the presidency. Among the important developments of this period was the founding of the College of Law, the maturing of plans providing for co-education, and the institution of the agricultural department as an integral part of the University. This constituted a radical departure from the policy of the other states of the middle west. In many instances agricultural and engineering colleges have been founded apart from the state university. The rapid growth of the University of Wisconsin and its hold upon the people have been in a considerable measure due to the fact that it contains within its organization the colleges which appeal to the farmer and artisan as well as to the business and professional classes of the state.

It was through the efforts of President Chadbourne that an appropriation of $50,000 was secured from the legislature of 1870 for the erection of a separate building for the women students of the University. This building, now known as Chadbourne Hall, was constructed during the following year, when Professor Sterling as Vice-President administered the University, and was first occupied in the fall of 1871.

President Twombly came to the University at the beginning of the academic year 1871-72. He was a graduate of Wesleyan University of Middletown, Connecticut, one of the overseers of Harvard College, and a founder of Boston University.

The reorganization of 1866 had provided for co-education, but for some years the work of the women was kept separate from that of the men. It was significant, however, of an increasing recognition of the importance of the education of women that the first appropriation which the legislature ever made to the University was for the women's building, and only a few years elapsed when complete co-education was adopted. Perhaps the most important development of the period of Dr. Twombly's presidency was the provision made by the legislature for a state tax of $10,000 a year to form a part of the University income. In thus adopting the policy of a special annual tax for the sup-

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port of the University, the legislature made the formal explanation in the preamble to the law, that the policy of disposing of the land grants by congress at a low price, in order to attract actual settlers, had prevented the increase of the productive funds, and that it was the duty of the State to see to it that the University should not suffer. A system of free tuition to the graduates of the high schools of the State who passed the University entrance requirements, was also adopted at this time. This step was the beginning of the elimination of the preparatory department of the University. By resting its growth upon the high schools of the State, and receiving an annual income from the taxpayers, the University merged itself completely with the educational life of the State, and, in the long run, felt the benefits of this change.

With the coming of President Bascom from Williams College, in 1874, the University entered upon a new life. The finances of the institution were put on a better basis by the legislative grant of a tenth of a mill tax, which afforded increasing revenue as the wealth of the State increased. Large specific grants for new buildings, including Assembly Hall, Science Hall, the Chemical Building, and the Machine Shop, were made in the same period. The Farmers' Institutes and the Short Course in Agriculture brought the University into closer touch with the farmers of the State. Under Dr. Bascom's presidency the preparatory department was abolished, and the University found all the students it could care for among the graduates of the high schools. At the beginning of his presidency the attendance, excluding the preparatory department, was about 300. At its close, thirteen years later, it was but 500; but the University had thoroughly gained the respect of the State.

President Bascom was succeeded by President Chamberlin of the United States Geological Survey, a graduate of Beloit College. He gave the University a strong impulse toward graduate study by the emphasis which he laid on research. Courses of study were increased, the standards of admission raised, and fellowships provided for graduate study. When he resigned, after five years of service, in 1892, the University had doubled its numbers, rising from 500 to 1,000. During his presidency, a new science building was completed, and buildings were erected for the dairy school and the College of Law. In addition, a University boat

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house was built, and the contracts let for the Armory and Gymnasium, now such a prominent feature of the Lower Campus.

President Adams came to Wisconsin from Cornell, whose presidency he had just resigned. Under his administration the University rose from 1,000 students in 1892 to 2,600 in 1901. The beautiful building for the library of the State Historical Society and the University, costing nearly three quarters of a million of dollars, and housing treasures of inestimable value, is the most impressive monument of his presidency. The University developed into a larger life in all directions during these ten years. The increase in the number of graduate students was large and the emphasis upon graduate teaching was distinct. At the close of his presidency there were over one hundred graduate students, while ten years before there were only twenty-two. Athletics had reached their largest development in the same period, and Camp Randall, an athletic field of forty-two acres, was purchased for the University. The University began its summer sessions in 1899, a development which has been very important in increasing the influence of the University.

During the absence of Dr. Adams, caused by illness, and after his resignation, Professor Birge, Dean of the College of Letters and Science, served as Acting President during the three academic years, 1900-1903.

President Charles R. Van Hise, the first alumnus of the University to hold the presidency, was elected in the spring of 1903, and assumed the active duties of the position at the beginning of the succeeding academic year.

THE SUPPORT OF THE UNIVERSITY

The University is supported partly by the income of federal grants, partly by taxation of the people of the State, and partly by private gifts. There have been five federal grants, namely: the Two-Township Grant of 1848; the Supplementary Two-Township Grant of 1854; the Morrill Grant of 1862 for the support of studies pertaining to agricultural and mechanic arts; the Hatch Grant of 1887 for the support of agricultural experiment stations, and the Supplementary Morrill Grant of 1890.

Besides numerous and large appropriations for buildings and other specific purposes, the State of Wisconsin has made eight continuing grants, namely; the one-tenth mill tax of 1876, in-

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creased to one-eighth mill in 1883; the additional one-tenth mill tax of 1891; the appropriation for the support of the Observatory in 1887; the appropriation for the support of Farmers' Institutes in 1885, increased in 1887; the appropriation for the College of Engineering, in 1889, of one per cent. of the railroad license tax; and the additional one-fifth mill grant of 1897. The legislature of 1899 consolidated the various mill taxes, specified above, and the grant of one per cent. of the railroad licenses, into a specific continuous annual grant of an amount equal to the annual revenue from these various grants. This appropriation was increased by the legislature of 1901, and again by the legislature of 1903.

In 1905 the laws making specific annual appropriations for the support of the University were repealed, and a two-sevenths of a mill tax was imposed for current expenses. This change resulted in a considerable increase in the income of the University. Moreover, an appropriation was made, extending through three years, for permanent improvements, including buildings for educational purposes, repairs and improvements, apparatus and books. The legislature of 1907 continued this appropriation for two years. The same legislature made an additional appropriation for a period of four years for student buildings, to comprise a women's building, including a women's gymnasium, and for men's dormitories. The authority to establish a medical college was granted, and a continuing appropriation was made to establish a university extension division.

Of the gifts that have come to the University, that of Dane County for the purchase of lands for the University farm, that of the late Governor C. C. Washburn for the founding of the Washburn Observatory, that of the late Judge Mortimer M. Jackson for the establishment of the Mortimer M. Jackson Professorship of Law, that of the late Dr. C. K. Adams and Mrs. Adams for the foundation of fellowships, and that of Mrs. Fannie P. Lewis for the foundation of scholarships for women, have been the most considerable and important.

THE UNIVERSITY AND THE STATE

The University of Wisconsin is the culmination of the free educational system of the State. In the educational policy of the State, the University sustains a similar relation to the high schools that the high schools sustain to the primary and grammar schools. As those who have passed through the grammar grades

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may freely avail themselves of the high schools, so those who have completed with credit a high school course may advance to the opportunities offered by the University. It is not expected that all pupils who complete the grammar grades will advance to the high school; nor is it expected that all who complete a high school course shall go forward to the University. But the school system of the State has been so arranged as to make the passage from one grade to another as easy and natural as possible, in order to afford every encouragement to higher education. The State through the University undertakes to furnish instruction in the various branches requisite for a liberal education, in the technical branches of engineering, law, agriculture, pharmacy, commerce, home economics, and music. It also aims to encourage research work in all departments, to produce creative scholars, and so do its part in the enlargement of the domain of knowledge. Thus it is the general policy of the institution to foster the higher educational interests of the State, broadly and generously interpreted. By prescribing a large number of studies during the first two years of undergraduate work, and by leaving all, or a large part, of the work of the last two years to the free selection of the student, under a definite system, the University endeavors to give a wise measure of direction, leaving at the same time sufficient room for choice to encourage individual adaptation and special development. The graduate work is, of course, wholly elective.

GOVERNMENT

The government of the institution rests upon the inherent obligations of students to the University and to the State. The University is maintained at the public expense for the public good. Those who participate in its benefits are expected, as a matter of honor, not only to fulfill the obligations of loyal members of the institution, of the community, and of the commonwealth, but actively to aid in promoting intellectual and moral interests. Every student owes to the public, in the form of superior usefulness to it, both while in the institution and afterwards, a full equivalent for its expenditure in his behalf.

The University avoids all that is sectarian or partisan; but it endeavors to extend its sympathy and influence to whatever contributes to good citizenship and high character.

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ORGANIZATION

The University embraces—

- The College of Letters and Science.
- The College of Engineering.
- The College of Law.
- The College of Agriculture.
- The College of Medicine.
- The Graduate School.
- The Extension Division.

The College of Letters and Science embraces—

- General Courses in Liberal Arts.
- Special Courses, which include:
  - Chemistry.
  - Commerce.
  - Home Economics.
  - Music.
  - Pharmacy.
  - For the Training of Teachers.

The College of Engineering embraces—

- The Civil Engineering Course.
- The Sanitary Engineering Course.
- The Mechanical Engineering Course.
- The Electrical Engineering Course.
- The Applied Electrochemistry Course.
- The General Engineering Course.
- The Mining Engineering Course.

The College of Agriculture embraces—

- The Experiment Station.
- The Long Course in Agriculture.
- The Middle Course in Agriculture.
- The Short Course in Agriculture.
- The Dairy Course.
- The Farmers' Institutes.

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The College of Law embraces—
A THREE YEARS' COURSE.

The College of Medicine embraces—
THE FIRST TWO YEARS OF A MEDICAL COURSE.

The Extension Division embraces—
THE DEPARTMENT OF INSTRUCTION BY LECTURES.
THE DEPARTMENT OF CORRESPONDENCE-STUDY.
THE DEPARTMENT OF GENERAL INFORMATION AND WELFARE.
THE DEPARTMENT OF DEBATING AND PUBLIC DISCUSSION.

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EQUIPMENT

GROUNDS AND BUILDINGS

The University of Wisconsin is picturesquely situated at Madison, the capital of the State. The University grounds comprise 450 acres, and extend for more than a mile along the south shore of Lake Mendota, a sheet of water about four miles in width and six miles in length. In the eastern part of the grounds the land rises abruptly from the lake into two summits, of which the eastern and higher, University Hill, reaches a height of about one hundred feet above the lake. The larger number of the college buildings are placed on the summit and eastern slope of this hill. The western part of the grounds is lower and more nearly level, and is occupied by the Experimental Farm, belonging to the College of Agriculture. East of the University Hill is the lower Campus, on the west end of which stands the State Historical Society Library Building for the libraries of the State Historical Society and the University. (For an account of this building, see Index, under Libraries.) The rest of the Lower Campus is used for athletic sports and as the drill ground for the military department. At the session of 1893 the legislature provided for the purchase of Camp Randall for an athletic field. This is a tract of ground comprising forty-two acres, adjoining the University grounds to the southwest. In 1898 one hundred and sixty acres were purchased for a special experimental farm for the College of Agriculture, to which, in 1903, sixty acres were added.

The buildings of the University that are used for instructional purposes are sixteen in number. The oldest three—North Hall, South Hall, and University Hall—stand on and near the eastern summit of University Hill. North Hall was erected in 1850-51, and was opened for instructional purposes on September 17, 1851. It is now occupied by the departments of German and Commerce. South Hall was erected in 1855. It contains the office of the Dean of the College of Letters and Science; offices, lecture rooms, and laboratories for the departments of Bacteriology, Home Economics, Hebrew and Hellenistic Greek, the Hygienic laboratory; and the offices of the Wisconsin Geological and Natural History Survey.

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University Hall, the construction of which was authorized by the legislature in 1857, was completed in 1859; it has since been materially changed; a new portico, a new dome, and a large south wing were added in 1897-99; a corresponding north wing was added in 1905-06, thus completing the building and making it worthy of its site on the crest of University Hill. This building contains the lecture and recitation rooms for most of the departments of language and literature, Mathematics, History, and Philosophy. On the first floor of the new wing are the offices of the President and the Registrar. These buildings as originally erected were paid for out of the money derived from the sale of lands granted by the national government.

Across the east front of the Campus, at the foot of University Hill, is a row of buildings, erected at the expense of the State of Wisconsin. At the south is Chadbourne Hall, the dormitory for young women; it was built in 1870 and remodeled and enlarged in 1896 (see Index). Next stands Assembly Hall, completed in 1879, the rear part, occupied by the University Library until the summer of 1900, has been remodeled for the School of Music. Still farther north is Science Hall, the largest and most costly of the University buildings, completed in 1887, containing the lecture rooms, laboratories, and museums of the departments of Physics, Geology, and Biology (including Anatomy). Next to Lake Mendota is the old Chemical Laboratory, built in 1885, and now occupied by the departments of Chemical Engineering and Physiology. To the rear of this are the Machine Shop and the central heating plant, both built in 1885, and enlarged in 1894. To the north of the Machine Shop, and abutting the lake, is the new Hydraulic Laboratory Building, completed in 1905. To the west of Science Hall, on the north side of the Campus, is the Engineering Building, erected in 1900. Opposite this, on the south side of the Campus, is the Law Building, erected in 1893, which, in addition to the library, lecture rooms, and offices of the College of Law, contains the offices of the University architect and the superintendent of buildings.

In 1906 the property on the corner of State and Park streets was purchased by the University, and during the summer of the same year the building was remodeled, and is now occupied by the officers of the Regents.

Southwest of University Hall, on the level tract of land fronting on University Avenue, stands the new Chemical Building. It

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was begun in 1904, and was available for instructional purposes in the fall of 1905. The central part of the building is 80 by 188 feet, with two wings, each 51 by 61 feet, all three stories in height. The 80-foot front is of Bedford stone; the rest of the exterior is of sand-lime brick, which matches the stone front in color, giving the effect of a solid stone building. When the building is complete, with future additions as planned, the whole exterior will be of Bedford stone. The light-colored brick will then face the light-courts. The building contains an auditorium seating five hundred persons, four smaller lecture and seminary rooms, and a library. Besides these there are large laboratories for organic, inorganic, analytical, physical, and pharmaceutical chemistry, with special laboratories for advanced work in each of these branches. The equipment of the building will be modern and complete throughout, affording the best of facilities for work in all departments.

Directly west of University Hill is Observatory Hill, upon which stands the Washburn Observatory, erected in 1878 through the munificence of the late Gov. C. C. Washburn. Near it are the Students' Observatory and the residence of the Director. On the western slope of Observatory Hill are the Hiram Smith Hall (for the Dairy School), constructed in 1891, the Horticultural-Physics Building, begun in 1893 and completed in 1896, and the new Central Agricultural College Building, first occupied in 1904, a description of which may be found in that part of this catalogue devoted to the College of Agriculture. South of Agricultural Hall are the Farm Engineering Building and the Agronomy Building, which were occupied for the first time in the autumn of 1907. Farther west lie the barns and buildings of the Experimental Farm and the residence for the Dean of the College of Agriculture.

Between the Lower Campus and the lake stands the Armory and Gymnasium, authorized by the legislature of 1901, and between this and the lake is the University Boat House.

LIBRARIES

The libraries at Madison, all of which are at the service of members of the University, are five in number, viz., the Library of the University of Wisconsin, the Library of the State Historical Society of Wisconsin, the Library of the Wisconsin Academy of Sciences, Arts, and Letters, the State Law Library, and the Madison Free Library. These libraries duplicate books only to supply exceptional demands, and have an effective strength

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the opening of the college year introductory lectures on the use of the library are given to new students by the University librarian. approximately equal to the total number of volumes possessed by them. The total number of bound volumes in all the libraries is about 352,000 and the number of pamphlets exceeds 182,000.

The first three libraries above named are all housed in the new library building of the State Historical Society on the Lower Campus of the University. This building, erected by the State of Wisconsin at a cost of $610,000, affords most convenient accommodations for students. In the planning of the building, the special needs of the University were consulted.

In the south half of the first floor are located four department libraries of the Historical Society, viz., documents, newspaper files, patents, and maps and manuscripts. In the north end of this floor is a series of six seminary rooms, allotted to American history, European history, political economy, political science, and mathematics. The greater part of the second or main floor is occupied by the general reading room and the periodical room, which are used in common by the two libraries. In these two reading rooms 275 readers may find ample accommodation at one time. In open cases in the reading room are shelved several thousand reference and "reserved" books. To these, as well as to the large collection of general and engineering periodicals in the adjoining periodical room, all readers have direct access. The main portion of both libraries is stored in the stack wing adjoining the delivery room on the west. Officers of the University have direct access to the shelves in all parts of the library, and students engaged in advanced work, upon recommendation of their instructors, are allowed access to those parts of the collection dealing with their special subjects.

The administrative rooms of the Historical Society and of the University library are situated at the south and north ends of the second floor respectively. The north end of the third floor is occupied by six seminary rooms, for the departments of German, Latin, Greek, Romance Languages, English, and philosophy and education. The south end of the third floor contains a small lecture hall, a room for the Wisconsin Academy of Sciences, Arts, and Letters, and two small administrative rooms. The museum and gallery of the Historical Society occupy the fourth floor.

The library is open fourteen and one-quarter hours daily, during the academic year, except on Sundays and legal holidays. At

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The Library of the University of Wisconsin, including its branches, contains about 135,000 volumes and 36,000 pamphlets. The catalogue is the usual dictionary card catalogue of authors, subjects, and titles in one alphabetical arrangement. Subject to certain restrictions, books may be drawn by all members of the University. Students are required to make a guarantee deposit of $2.00 with the bursar of the Regents before borrowing books from the library. This amount is refunded on presenting to the bursar the library deposit card properly endorsed by the librarian.

In general, the library aims to be uniformly developed in all fields, but appropriations and gifts in recent years have rendered it specially strong in the lines of political economy, political science, European history, and Germanic and classical philology.

The College of Law has a special library of 16,000 volumes; and the Washburn Observatory is provided with the Woodman Astronomical Library, now containing 2,600 books and 2,700 pamphlets. The agricultural library of about 9,500 volumes is located on the first floor of the new Agricultural Hall. In the reading room of the Engineering Building are kept the current files of the most important engineering and technical periodicals, together with a collection of engineering reference books.

The Library of the State Historical Society contains over 149,000 volumes and 146,000 pamphlets. While strong in all fields of American history and allied subjects, it is especially rich in manuscript and other material for the study of the history of the Mississippi valley. Its collections in English history are among the most extensive in this country.

The Library of the Wisconsin Academy of Sciences, Arts, and Letters is a valuable collection of reports and transactions of learned societies, comprising about 5,000 volumes. It is located in the library building, and constitutes a useful supplement to the other libraries in this special field.

The State Law Library in the Capitol numbers about 45,000 volumes. Students are allowed to draw books from the Madison Free Library, located in its new building. This is a well selected collection of over 18,000 volumes.

The excellence and extent of these libraries is such as to make Madison among the first, and in some departments the most important, of library centers west of the Alleghanies.

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LABORATORIES

CHEMICAL LABORATORIES.—The chemical laboratories are located in the new chemical building, a large structure devoted exclusively to chemistry and pharmacy. On the first floor are the beginners' laboratories accommodating five hundred and forty students, and the laboratories of advanced inorganic chemistry accommodating eighty students. On the second floor are the laboratory of qualitative analysis accommodating one hundred and twelve students, the laboratories of quantitative analysis accommodating one hundred and twenty-one students, the food laboratory accommodating ten students, and the laboratory of practical pharmacy accommodating twelve students. On the third floor are the laboratories of physical chemistry accommodating fifty-six students; the laboratory of electrochemistry accommodating twenty-four students; the laboratories of organic chemistry accommodating sixty-four students; and the laboratory of pharmaceutical chemistry accommodating forty-eight students. The building also contains a large auditorium with a seating capacity for five hundred and four persons, and three additional lecture rooms, one on each floor, seating sixty persons each. On the second floor, there is a seminary room with a seating capacity for about sixty students, and on the third floor a library and reading room with a capacity for about fifty students. Besides the rooms mentioned, the building is well supplied with offices, private laboratories, smaller laboratories for special work, dark rooms, balance rooms and store-rooms. All the laboratories are well lighted and well equipped for the work for which they have been designed. The supply of chemicals and apparatus is unusually good; and the chemical library contains complete files of all the important chemical journals, and is well supplied with reference books and other works on chemistry and allied subjects. The chemical department is therefore able to offer exceptionally good facilities, not only for the pursuit of the usual courses in chemistry, but for original investigation as well. Research is especially encouraged, and such additional facilities as may be required for any special piece of work are furnished by the department when needed.

PHYSICAL LABORATORIES.—The instruction in the department of physics is designed to meet the needs of all classes of students, from those just entering, with no knowledge of the subject, to those who have been well trained, and who are prepared to con-

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tinue in the more advanced courses or take up a line of original investigation.

The physical laboratories are located on the first floor and in the basement of Science Hall, and are commodious and well lighted. Besides the lecture room and the large apparatus room, the first floor contains the general physical laboratory, which is new and complete in its appointments in every respect. The lecture room has a seating capacity for 200 students, and is provided with all the appliances to facilitate a complete course of experimental lectures. In the basement are three large general laboratories for undergraduate work and a number of laboratories for special investigation, all of which are liberally supplied with piers to insure perfect stability of the instruments used. A well-equipped workshop under the direction of a skilled mechanic is an important feature of the department. Besides current supplied from the numerous dynamos in the University shops, the various rooms of the physical laboratory are connected with the electric light and power circuits of the city.

The physical apparatus includes, in addition to the equipment for demonstration purposes, an excellent collection of instruments adapted to measurement and investigation. The laboratory offers special facilities for carrying out graduate study and research.

MINERALOGICAL LABORATORY.—The laboratory of mineralogy is located on the second floor of Science Hall, where desks, apparatus and chemical reagents for courses in blow-pipe analysis and determinative mineralogy are provided for a class of forty students; there is also a goniometer room which can be darkened for the study of crystals. In the mineralogical lecture room are the necessary models of crystals in glass and wood, and working collections of crystals and minerals.

PETROGRAPHICAL LABORATORY.—This laboratory is supplied with polarizing microscopes, other necessary apparatus, and a very complete set of rocks and of rock and mineral sections, for courses in optical mineralogy and petrology. The general and special collections mentioned under the caption of Museums are available for all advanced students of petrology.

GEOLOGICAL SEMINARY.—This room is fitted out as a department library with a full equipment of reference books, maps, charts, etc.

BIOLOGICAL LABORATORIES.—The elementary laboratory for the departments of botany and zoology is arranged to accommodate seventy-two students, and is provided with compound microscopes,

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dissecting microscopes, and other apparatus necessary to an elementary course in botany and zoology.

BOTANY.—The laboratories for advanced work in botany are fitted up with the apparatus and reagents necessary to advanced courses in vegetable morphology, histology, physiology and cytology. A greenhouse and a laboratory, also under a glass roof, occupy the fourth floor of the south wing of Science Hall, and have been especially equipped for work on the development and physiology of the lower plants, and for plant pathology. A considerable amount of apparatus for work on the special physiology of the flowering plants is also provided. A special laboratory is devoted to work in general physiology, and all necessary reagents, ovens, paraffin baths and microtomes of various patterns are provided for histological and cytological work on cell structure and the phenomena of cell division, fertilization, chromosome reduction, etc. Provision is also made for work on the metabolism of cells and their reactions to physical stimuli. The equipment includes apparatus for the study of the effects of various thermal, light and gravitational stimuli on protoplasmic activities, and a set of electrical measuring instruments, such as delicate d'Arsonval galvanometer, mil-ammeter, resistance measuring instruments, etc., for the study of electro-physiological problems.

ZOOLOGY.—For advanced work in zoology new laboratories have been equipped with all necessary apparatus for regular classes, or for any special work that the student may elect. Compound and dissecting microscopes, microtomes, paraffin baths, reagents, etc., are included in the equipment and are at the disposal of the students. In connection with much of the work done in zoology, use is made of the museum, which contains, besides the regular exhibit collection, special sets which have been purchased especially for use in the lecture room and laboratory. These include cases illustrating protective coloration, mimicry, sexual dimorphism, etc. Many models are used in the laboratory; a nearly complete set of Ziegler models illustrating life-histories of invertebrates, besides a large number of Blatschka models, especially rich in protozoa and coelenterata. A large collection illustrating the life histories of insects, both alchoholic and dry preparations, while exhibited in the museum, have been purchased especially for lecture and laboratory work.

Anatomy.—There are laboratories devoted to human anatomy. vertebrate anatomy, histology, and embryology. These laborator-

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ies are thoroughly equipped with apparatus, models, and materials for advanced as well as elementary work.

Physiology and Physiological Chemistry.—These laboratories occupy two floors in the south wing of the Chemical Engineering Building. They contain a thorough equipment for elementary and advanced work in experimental physiology and in physiological chemistry.

Bacteriology.—The laboratories for the College of Letters and Science are located on the third and fourth floors of South Hall; those for the College of Agriculture on the first and second floors of the Agricultural Building. The laboratories in South Hall consist of a suite of twelve rooms, including a large general laboratory and an advanced laboratory with special rooms for individual research.

THE AGRICULTURAL LABORATORIES.—The well equipped laboratories of the College of Agriculture provide unusual opportunities to students, especially those pursuing advanced work, because of the wide range of both practical and research efforts conducted by the Experiment Station. The chemical department, for example, is, by legislative action conferred upon the Station, entrusted with the supervision and licensing of commercial concentrated feeding stuffs and commercial fertilizers sold in the State. The Horticultural department has charge of nursery inspection, likewise by legislative act. The Agricultural Bacteriological department is in close association with the State Live Stock Sanitary Board in matters relating to animal diseases. The Dairy department converts more than four million pounds of milk annually into various commercial dairy products. The large complement of live stock at the farm is in use at all times in feeding experiments. The Physics department conducts soil and plant culture researches. The Agronomy department is striving to improve our grains and forage plants. The Agricultural Engineering department studies the various implements used on the farm. All these efforts converge in the laboratories of the College, giving unusual force and character to all work done therein.

THE STATE HYGIENIC LABORATORY is located on the second floor of Agricultural Hall and the abundant material here furnished for diagnostic purposes is also utilized for class room and research work.

PATHOLOGY AND MEDICAL BACTERIOLOGY.—These are temporary laboratories in Agricultural Hall.

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THE PSYCHOLOGICAL LABORATORY.—The laboratory occupies a suite of eleven rooms on the basement floor of the north wing of University Hall. The equipment is especially designed to meet the needs of practical experiments and demonstrations for the courses in psychology, and to give opportunity to students of psychology to study the methods and results of psychological problems. There are special facilities for original research in many directions, while provisions are also afforded for the practical application of results and tests to educational problems.

Publications setting forth the results of special studies undertaken in the laboratory have appeared in the *American Journal of Psychology*, the *Psychological Review*, the *Educational Review*, the *Popular Science Monthly*, and elsewhere. Four series of special papers of this kind have been published, and others are in preparation. Theses involving experimental inquiry are arranged for the baccalaureate and advanced degrees.

THE HOME ECONOMICS LABORATORY.—This room is on the third floor of South Hall. It is completely equipped for laboratory work in cooking and in the study of food materials.

The Engineering, Assaying, Pharmacy, and Agricultural laboratories are described under their respective departments.

UNIVERSITY MUSEUMS

OFFICERS

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
ROBERT A. HARPER, Ph. D., Professor of Botany, Curator for Botany.
WILLIAM S. MARSHALL, Ph. D., Associate Professor of Entomology, Curator for Zoology.
WILLIAM S. MILLER, M. D., Associate Professor of Vertebrate Anatomy, Curator for Vertebrate Anatomy.
C. K. LEITH, Ph. D., Professor of Economic and Structural Geology, Curator for Economic and Structural Geology.
ROLLIN H. DENNISTON, Ph. D., Curator for Pharmaceutical Collections.

The University museums comprise the Anatomical Museum, the Geological and Mineralogical Museum, the Biological Museum, the Herbarium, and the Drug Cabinet, which occupy respectively the second and third floors of the south wing of Science Hall. The collections in the College of Engineering and the College of Agriculture are described in later pages.

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THE ANATOMICAL MUSEUM is at present located on the fourth floor of Science Hall. It is primarily designed as an aid in teaching and investigation, and includes both human and comparative vertebrate anatomy.

In osteology there is a complete series of human skeletons from the embryo through foetal life up to, and including, the adult. The collection includes a number of articulated and disarticulated skulls. In addition to the above there is a representative collection of vertebrate skeletons displayed in the Biological Museum. Arthrology is represented by a series of preparations which show the ligaments of all the principal joints. Myology, angiology, and splanchnology are represented by numerous preparations including dissections and frozen sections, the best of the His models made by Steger, of Leipzig, some of which represent the viscera *in situ*, while others show the individual organs removed from the body. In neurology the collection includes the plaster casts of brain dissections by Steger and by Fuller, the series of His models showing the development of the brain, made by Ziegler, and models showing the principal fiber tracts of the cord and medulla. Peripheral nerves and sense-organs are illustrated by models by Tramond and by Auzoux. In embryology there is a series of the models made by Ziegler, a collection of embryos, human and vertebrate, preserved in formalin, and a series of dissections of embryos of various ages. In the museum there are a number of models and special preparations made in the laboratories for teaching purposes, or to illustrate special investigations.

THE GEOLOGICAL AND MINERALOGICAL MUSEUM has been built up for the most part with special reference to instructional work. It is divided into four parts, one devoted to systematic paleontology, one to systematic collections of minerals and rocks, one to a systematic collection of ores, and another to relief models illustrating topographic and geologic features. The paleontologic section includes the Powers collection of Wisconsin Silurian fossils and also the Wisconsin Academy of Arts, Science, and Lectures collection containing the type fossils described in the volumes of the first Wisconsin Geological Survey of Wisconsin.

A large amount of the general illustrative material, not coming directly under the above heads, is exhibited in cases in the halls of the geological department.

A number of additional collections are at present stored in the

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lecture rooms, laboratories and offices, and are accessible to students interested. These include a collection of 40,000 specimens and 20,000 thin sections, belonging to the Pre-Cambrian and Metamorphic Division of the United States Geological Survey, one of the largest of its kind in the world; a large collection of New England rocks belonging to the same survey; the collections of the old Wisconsin Geological Survey; and the Hobbs collection, mainly of European rocks, supplied with over 1,000 thin sections.

THE ZOOLOGICAL AND BOTANICAL MUSEUM is in the central room of the fourth story of Science Hall. Among the specimens at present placed in the cases may be named a good collection of vertebrate skeletons; a complete set of Ziegler models illustrating various stages in the development of vertebrates and invertebrates; models of the brain and sense organs; a large number of Blatschka glass models of invertebrates; an alchoholic collection of invertebrates from the Naples Zoological Station; representative collections of echinoderms, corals, and mollusks. The botanical cases contain a collection of Auzoux models of flowers, a collection of specimens of wood and of the fleshy and woody fungi of the state. The Owen collection of Lepidoptera, comprising 5,000 species, and over 20,000 specimens, is deposited in Science Hall.

THE HERBARIUM of the University (rooms 41 and 51, Science Hall) includes the Lapham collection, chiefly of flowering plants, purchased by the State from the estate of I. A. Lapham, of Milwaukee. This collection, which contained about 8,000 species, has been mounted and arranged and is now accessible for study. The Wisconsin plants have been separated from the rest, and it is the intention to make them the nucleus of a complete representation of the Wisconsin flora. Large additions have been made to this herbarium by Professors L. S. Cheney and H. L. Russell. Mr. Lapham's collection also included a considerable number of algæ, lichens, and mosses. The collection of mosses has been very greatly extended by gifts, purchases, exchanges, and collections acquired, so that it now includes almost all of the species known to North America, besides a large number of those from other countries. Many valuable types and sets of exsiccati are included. The collection of algæ and parasitic fungi contains the principal North American exsiccati as well as large local collections. There is also a large and rapidly growing collection of alchoholic and dried specimens of the fleshy fungi of the State.

The biological seminary room contains a department library

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with the main reference books and periodicals in zoology and botany, and card catalogues of biological literature.

THE DRUG COLLECTION.—At present this collection contains about 4,500 sample specimens of drugs for purely illustrative purposes. Each year large additions come to it as contributions from various sources. Among the larger contributions are Schimmel & Co., of Leipzig, Germany, Lehn & Fink, Parke, Davis & Co., and Gilpin, Langdon & Co. The collection is well supplied with drugs of Asiatic origin. Notable among them are a collection of fifty Ceylon drugs and medicines and a collection of more than one hundred Malay medicines.

THE CHEMICAL COLLECTION.—The collection here described is located in the new Chemistry Building. Through the liberality of the United Alkali Company of England, some fifty specimens of their products in various stages of manufacture were obtained. Dr. William Simon, of Baltimore, has contributed a series of specimens illustrating the manufacture of bichromate and ferrocyanide of pottassium. Fries Bros. of New York have donated a number of synthetics used in perfumery. A similar collection has recently been received from the Herbene Chemical Co. of New York. A cabinet for volatile oils contains fine collections from Schimmel & Co., of Leipzig, Germany; Roure Bertrand Fils, of Grasse, France; Dodge and Olcott, New York; and others. A cabinet for dye-stuffs contains over 350 samples of artificial dye-stuffs from the Farbenfabriken of Elberfeld & Co. of New York. This collection is supplemented by ten volumes of richly illustrated descriptive matter, to which additions are being constantly received. Large and valuable collections of modern synthetic new remedies have been received from Schering and Glatz, from the Farbenfabriken of the Erberfeld Company, and from Merck & Co., all of New York. Numerous smaller donations have been received within recent years.

When the museums are not open to the public, access may be gained by visitors at all reasonable hours by calling upon the janitor of the building.

THE WASHBURN OBSERVATORY

The Washburn Observatory is primarily an institution for research, and an account of its equipment and the character of the work there undertaken may be found on a later page. (See In-

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dex.) But it is also utilized as a part of the instructional equipment of the University for students of all stages of advancement. It is open to the public on the first and third Wednesday of every month, from 7:30 to 9:30 P. M., provided the evening is clear, and at these times visitors may look through the large telescope and examine the most interesting objects of the sky.

THE WEATHER BUREAU

The U. S. Government maintains at the University, in charge of a regular Observer, a fully equipped Weather Bureau station of the first class. Weather observations are taken and telegraphed twice daily, and weather maps and forecasts are issued each forenoon, except on Sundays and holidays. The equipment of the station includes the usual non-recording instruments and also automatic registers for making a continuous record of pressure, temperature, wind direction and velocity, sunshine and rainfall. The exposed apparatus is mounted on the roof of North Hall, while the registers are located in the local office of the Weather Bureau, in Room 84, in the same building. This office is open to the public from 9 A. M. to 4 P. M. daily, except on Sundays and holidays. Visitors are especially welcome during the afternoon hours.

The courses in Meteorology are given on a later page. (See Index.)

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GENERAL INFORMATION

UNIVERSITY REGULATIONS

THE UNIVERSITY YEAR

The regular University year opens on the last Wednesday in September. There are two semesters in each year. The first semester ends on the Friday at the middle of the University year, not including recesses. The second semester begins on the succeeding Monday, and ends with the annual Commencement, on the thirty-ninth Wednesday of the University year.

The Christmas vacation ordinarily begins at the end of the second day before Christmas, and closes at the beginning of the second day after New Year's. When, however, Christmas falls on Monday or Tuesday, the vacation begins at the end of the Friday preceding, and when New Year's falls on Thursday, or later in the week, the vacation closes at the beginning of the following Tuesday. The Easter recess begins on the Thursday morning before Easter Sunday, and closes on the morning of the following Tuesday.

STUDENT ADVISERS

In the College of Letters and Science, the College of Engineering, and the College of Agriculture, each student is placed under the immediate charge of a member of the Faculty, who acts as his adviser in matters pertaining to University work. The student must consult his adviser in choosing studies, and obtain his approval before classes can be entered.

The system of student advisers varies somewhat in the colleges mentioned above, and does not obtain in the College of Law and the School of Music.

INFORMATION FOR WOMEN STUDENTS

The Adviser of Women gives general and individual attention to the academic and social welfare of women students.

For the benefit of those who are not accommodated in Chad-

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bourne Hall (see Index) she has prepared a list of addresses where rooms for young women may be obtained. Each house on the list has been visited by her, and while responsibility for them cannot be assumed by the University, they are believed to be suitable homes for women students.

By a resolution of the Self Government Association women students will occupy rooms only in such lodging houses as accommodate women exclusively, and in which a parlor is provided for the reception of visitors. Exceptions to this rule will be only by permission of the Adviser of Women. The houses on the prepared list meet these requirements, and the list may be had upon application. All arrangements must be made directly with the persons mentioned in the list, and should be made early by those who desire a wide choice of rooms. Young women students, upon entering the University, are required to report to the Adviser of Women to register their addresses, or to be directed if rooms have not been secured. All changes of address are expected to be reported promptly.

Cases of illness reported from houses on the approved list will be visited by the University nurse.

The Adviser of Women invites correspondence with parents and guardians, and gladly co-operates with them regarding the welfare of students.

HONORS

Honors are given at graduation for special work of high order of excellence done in any department. Such honors will be voted by the Faculty to those students whose graduation theses show exceptional excellence, and who have completed with unusual success a long course of study in the department in which the thesis is presented. The thesis must show work additional to all requirements for graduation equal to two hours a week for one year. Students desiring to become candidates for special honors in any department must make application to the Faculty, at the opening of the second semester, through the professor in whose department the honors are sought.

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UNDERGRADUATE SCHOLARSHIPS AND FUNDS

SCHOLARSHIPS FOR UNDERGRADUATES

The Amelia H. Doyon Scholarships

By the will of Mrs. Amelia H. Doyon, late of Madison, the University has received a gift of $5,000, to be known as the Amelia H. Doyon Fund. The income from this fund is to be divided into two equal parts, to be designated as the Amelia H. Doyon Scholarships, which are to be given to young women in attendance at the University, to be selected by the Faculty. In making this selection the Faculty is to take into consideration the scholarship or standing of the persons selected and their need of financial help. Neither of these scholarships is to be bestowed on any young woman who has not been in attendance as a student at the University of Wisconsin for at least one year.

The Lillian Paige Allis Scholarships

Through the liberality of Mrs. Lillian Paige Allis, of Madison, the department of German offers two scholarships, one open to juniors and the other to seniors, having a value of $50 and $100 respectively.

The Henrik Wergeland Scholarship

Hon. Torger G. Thompson, of Deerfield, has generously provided for a scholarship, of the value of $200, to be awarded to students of Norwegian ancestry.

The Christian R. Stein Scholarship

By the will of the late Christian R. Stein, of Madison, a bequest of $1,000 was made to the University, the interest of which maintains a scholarship to be given by the Faculty to a student of the University who has been in attendance at least one year.

The Henry Gund Scholarship in German

Mr. Henry Gund, of La Crosse, has generously established a fund of $5,000 to maintain a scholarship in German literature.

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LOAN FUNDS AND STUDENT AIDS

The John A. Johnson Fund

The University is indebted to the liberality of the Hon. John A. Johnson, late of Madison, for a fund of $5,000, the interest of which is loaned to students. The sum obtained by one student in one year shall not exceed $50, and the total amount shall not exceed $200. At present the benefits of the fund are limited to Scandinavian students. The income of this fund is loaned by the Faculty Committee on Loan Funds.

The Graduating Class Fund

The class of 1900 gave to the University several hundred dollars, the profits of the Senior Class Play, as the nucleus of a loan fund for the aid of needy students, to which the succeeding classes have made substantial additions. The money hitherto received has been loaned to students on promissory notes. This fund is under the charge of the Faculty Committee on Loan Funds, consisting of the President of the University, Professor Storm Bull, Chairman, and Professors Olson, Voss, Gay, and Mrs. Woodward.

The Secretary's Fund

The Secretary of the Regents in 1900 established a fund of $500 for the aid of meritorious students. Additions to the fund have been made by others. No loan shall exceed $50 in a single year, and the aggregate loans to any person shall not exceed $200.

The Geneva Loan Fund

This fund of $450 was provided in December, 1903, by Mrs. E. P. Allis and Mr. Louis Allis, of Milwaukee, and by Mr. Frank W. Allis (member of the Short Course class of 1897), proprietor of Monona Farm, Madison. In February, 1905, F. W. Allis gave $150 additional, and in October of the same year Louis Allis contributed another $150 so that the fund amounts to $750. It is available to needy members of the Short Course classes of the College of Agriculture only, in small amounts. Loans from this fund may be made through the Dean of the College of Agriculture.

Employment Bureau

The Young Men's Christian Association of the University conducts an employment bureau for the benefit of those students

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who find it necessary to contribute to their own support. Students who are willing to do good work can, in most cases, be supplied with remunerative employment. The positions that are most frequently supplied are: waiting on table, tending furnace, assisting in the house, caring for lawns, and serving as stenographer, typewriter, or clerk. In 1906-07 nearly four hundred positions were secured for over one hundred men, representing about $6,000. The General Secretary of the Young Men's Christian Association has direction of the employment, having his office at Association Hall. Students who must earn part of their expenses should communicate with the Secretary before they come to the University.

PRIZES IN RHETORIC AND ORATORY

The Steensland Prize in Debate and Essay

Hon. Halle Steensland, of Madison, has given the sum of $300, to be known as The Steensland Prize in Debate and Essay. One hundred dollars is to be awarded each year, beginning in 1905-06, as follows: Seventy dollars to the best three debaters in a debate open to all the students of the University, to be thus apportioned: Forty dollars to the one who stands first in such contest; twenty dollars to the second, and ten dollars to the third. Thirty dollars of the one hundred is to be given for the best essay. For the three years the subjects are: (a) Good citizenship: What is it, and how can it best be promoted. (b) The habit of punctuality a prime element in character, and an important requisite for a successful life. (c) The simple life: What is its scope and its value.

The Albert O. Trostel Prize in Debate

A sum of $500 was given, in 1905, by Mr. Albert O. Trostel, of Milwaukee, to be used, not to exceed $100 each year, for the promotion of intercollegiate debating in the University. The prizes may be in the form of medals, or in such other form as will, in the judgment of the President of the University and the professor of rhetoric and oratory, best promote excellence in such intercollegiate work.

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SOCIETIES AND PUBLICATIONS

LITERARY AND SCIENTIFIC SOCIETIES

The literary and debating societies of the University have played so important a part that they may almost be said to constitute a department by themselves. The Athenæan and the Hesperian societies are nearly as old as the University itself, Athena having been organized in 1850, and Hesperia in 1854. Philomathia was organized in 1886, and Olympia in 1902. These societies are sustained with great enthusiasm, and are an important means of intellectual training. Athena, Hesperia, and Philomathia form what is known as the Joint Debate League, which arranges annually a public debate between two of these three societies. This joint debate has been a feature of the University for nearly forty years. These four above-mentioned are men's societies in the College of Letters and Science. The two chief debating societies of the College of Law are the Forum and the Columbia. The young women maintain two literary societies, Castalia, established in the early years of the University, and Pythia, in 1902. These eight societies form the Oratorical Association, which has charge of inter-collegiate debating and oratory. This association is a member of a pentangular debating league, composed of the universities of Illinois, Iowa, Minnesota, Nebraska, and Wisconsin. Each University meets two of the others each year in debate in rotation, so that in the complete round each of the universities meets each of the others twice. A series of preliminary contests, held at the middle of each year, is made up of a Sophomore Contest, a Junior Contest, a Junior-Ex Contest, (between representatives of each of the literary societies chosen from the Junior class), and a Senior Contest. The winner in this series is chosen as the representative of Wisconsin in the Northern Oratorical Contest, in which he meets representatives from the universities of Chicago, Iowa, Michigan, Minnesota, Northwestern, and Oberlin. Another contest is held in the autumn of each year to select a representative to compete with representatives of the other universities for the prize offered by the Hamilton Club of Chicago, nine universities being represented.

The most important scientific organization in the University is the Science Club, which includes both officers of instruction

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and advanced students, and seeks to promote an interest in scientific study and research. It conducts public meetings for the discussion of scientific topics of current interest. A bronze medal, executed by T. Moring, London, is annually awarded by the Club for the best baccaulaureate thesis on a scientific subject. The Historical and Political Science Association and the Language and Literature Club are new societies organized by instructors and graduate students for the purpose of fostering advanced work. In various departments of the University there are journal clubs or societies for furthering the special work of the departments. Among these are the *Germanistische Gesellshaft;* a Scandinavian society, the *Nora Samlag;* the Pharmaceutical Society; the Classical Club; the Physics Journal Club; the Biological Club, and the Chemical Club. In other departments, where no such organization has been affected, similar results are reached by means of the various seminaries. The graduate students of the University maintain a Graduate Club. The Scissors and Paste Club is composed of senior and junior members of the University publications. A University Press Club is maintained for students preparing for journalism. A Music Students' Cllub has been organized to encourage among the students a more serious study of the great composers and their works. The Haresfoot Club is maintained by University dramatic talent, and presents a play annually; the Red Domino Club is a similar organization maintained by young women; and the Edwin Booth Club aims to promote dramatic interest and train dramatic talent. Phi Alpha Tau is a semi-honorary fraternity devoted to the interests of oratory and public speaking. Admission is determined by the members, largely on the basis of native ability and proven success along these lines.

SOCIAL AND RELIGIOUS ORGANIZATIONS

The women have organized a Woman's Self Government Association, which seeks to further in every way the unity of spirit of women in the University, to increase their sense of responsibility toward each other, and to be a medium by which the social standard of the University can be made and kept high. The religious organizations of the University include the Young Men's Christian Association, and the Young Women's Christian Association. Honorary fraternities are represented by Phi Beta Kappa, established in 1898, and Tau Beta Pi, the honorary engineering

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fraternity, established in 1899, Alpha Zeta, the honorary agricultural fraternity, established in 1906, the Phi Lambda Upsilon, the honorary chemical fraternity, established in 1906, and Sigma Xi, the honorary scientific fraternity, established in 1907. The Iron Cross, the honorary senior society, is composed of students who have distinguished themselves in the various lines of student activity.

PUBLICATIONS OF THE UNIVERSITY

The University issues six series of publications, giving the results of research in the University, under the general title, *Bulletin of the University of Wisconsin*. These series are (1) Economics and Political Science, (2) History, (3) Philology and Literature, (4) Science, (5) Engineering, (6) University Extension.

The Washburn Observatory issues the *Publications of the Washburn Observatory*, edited by Professor George C. Comstock.

From the College of Agriculture are issued the *Bulletins of the Experiment Station*, the *Annual Reports*, and the *Bulletin of the Farmers' Institutes*.

A further statement in reference to the above publications is found in the Appendix. Application should be made to the Secretary of the Regents for the *Bulletin*, to Professor G. C. Comstock for the publications of the Washburn Observatory, and to Dean H. L. Russell for the publications of the College of Agriculture.

Besides these official publications of investigations the following are edited at the University.

Bulletins of the Wisconsin Geological and Natural History Survey, edited by Professor E. A. Birge, Director.

Transactions of the Wisconsin Academy of Sciences, Arts and Letters, edited by Professor C. E. Allen, Secretary.

The Pharmaceutical Review, edited by Professor Edward Kremers.

Paedagogische Monatshefte, Professor Edwin C. Roedder, Associate Editor.

The University also issues a general series of the *Bulletin*, which includes the annual Catalogue, special announcements of the Graduate School, the Summer Session, the College of Engineering, the College of Agriculture, the College of Law, the University Extension Division, the College of Medicine, the School

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of Music, the Course in Commerce, the Course in Pharmacy, and of various departments in the College of Letters and Science. These publications may be had upon application to the Registrar of the University.

The *Directory of Officers and Students* is issued by the University in the early part of the academic year. It gives the University and city address of the officers of instruction and government, and the home and city address and the class of each student.

The General Catalogue of the Officers and Graduates of the University of Wisconsin gives a complete list and classification of the graduates of the University and their present address and occupation, and the terms of service of the regents and members of the instruction force. This catalogue gives also a list of the recipients of honorary degrees, and of higher degrees conferred for work done. It is published once in five years, and may be had upon application to the Secretary of the Regents. The last volume was published in 1907.

STUDENT AND ALUMNI PUBLICATIONS

The publications conducted by the students include *The Daily Cardinal;* a bi-weekly illustrated humorous publication, *The Sphinx;* a monthly, *The Wisconsin Literary Magazine;* and an annual, *The Badger*, issued by the Junior Class. The students of the College of Engineering issue a quarterly publication, *The Wisconsin Engineer. The Student Farmer*, a monthly publication, is issued by the students of the College of Agriculture. A monthly journal, *The Wisconsin Alumni Magazine*, is issued by the alumni.

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ADMISSION TO THE UNIVERSITY

METHODS OF ADMISSION

Students are admitted either upon examination at the University, or upon certificates from accredited schools, except that students and graduates of the Normal schools of this state, students from other colleges and universities, and adult special students, are admitted in accordance with the provisions stated below.

For the examinations at the University, see Index.

TIME OF ENTRANCE

New students ordinarily enter the University at the opening of the first semester; but there are advantages in beginning work in the Summer Session, not only to the student who needs to strengthen his preparation, but also to the strong student, who through the advantages offered by the Summer Session may complete his University course *in three years*. For the courses, see Index under Summer Session.

In a general way it is, moreover, advantageous to any student to begin work in the Summer Session, for the following reasons: He becomes familiar with University methods of instruction before the heavier work of the year begins; he receives more individual attention, as the classes in summer are smaller; his experience and the advice of his instructor will enable him more wisely to shape his course.

New students may enter at the beginning of the second semester, but they should be on hand the week preceding, in order to make the necessary arrangements, as the regular work of the semester begins promptly on Monday morning.

ENTRANCE REQUIREMENTS

The requirements for admission are stated in terms of units. The term *unit* means the equivalent of five recitations a week for one year in one branch of study. In closely allied branches not usually taught in periods of one year each, such as physiology

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and zoology, units may be constructed by adding the respective time values of such studies. In any subject three recitations a week for one year and a half may be counted as one unit.

Fourteen units are required for admission, of which six are required of all, and eight are elective. For a description of the amount of work expected in each of the subjects named in the entrance requirements, see Index, under Preparatory Work.

I. The following six units are required of all:

ENGLISH ..... 2 units
MATHEMATICS ..... 2 units
LATIN, GERMAN, OR FRENCH ..... 2 units

II. In addition to the requirements under I, eight units must be offered from the following elective subjects:—

ENGLISH ..... 1 or 2 units
MATHEMATICS ..... ½, 1, 1½, or 2 units
FOREIGN LANGUAGE:
- Greek ..... 1 or 2 units
- Latin ..... 1, 2, 3, or 4 units
- German ..... 1, 2, 3, or 4 units
- French ..... 1, 2, 3, or 4 units
- Spanish ..... 1 or 2 units

HISTORY ..... 1, 2, 3, or 4 units
- Ancient History ..... 1 unit
- Medieval and Modern History ..... 1 unit
- Medieval and English History ..... 1 unit
- English History ..... 1 unit
- United States History ..... 1 unit

CIVICS ..... ½ or 1 unit
- Commercial Law may be offered under Civics ..... ½ unit

ECONOMICS AND COMMERCIAL GEOGRAPHY, combined, 1 unit; separately, ½ unit each.

SCIENCE ..... 1, 2, 3, or 4 units
- Botany ..... 1 or 2 units
- Chemistry ..... 1 or 2 units
- Physics ..... 1 or 2 units
- Physical Geography and Geology ..... 1 or 2 units
- Physiology ..... ½ unit
- Zoology ..... 1 or 2 units

MANUAL TRAINING, OR OPTIONAL SUBJECT (See below) ..... 1 unit

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LIMITATIONS.—Not more than four of the required fourteen units will be accepted in any one subject. No foreign language course of less than two units will be accepted from students presenting only one foreign language. Students who present not less than three units of one foreign language may receive credit for one unit of a second foreign language.

OPTIONAL SUBJECT.—An optional subject is any subject of the student's high school course not specified in the list of elective subjects. When manual training is not offered, one optional subject of one unit, or two of one-half unit each, may be offered. No optional subject may be offered with manual training.

ADMISSION WITHOUT FOREIGN LANGUAGE.—Students may be admitted without foreign language under the following conditions: (1.) They must offer fourteen units subject to all the limitations stated above, except that one optional unit may be offered with manual training, or two optional units without manual training. (2.) The language requirements must be met before graduation. This will ordinarily require extra work to the extent of four hours a week for one year, which will not be credited as part of the number of unit hours required for graduation in the several colleges and courses. Opportunity for making up the deficiency in language will be offered by the University.

ADVISED GROUPING OF PREPARATORY SUBJECTS.—Students are advised to adapt their preparatory work to the course that they expect to pursue in the University. Attention is called to the requirements for admission to the several colleges and courses, and to the statements of the several departments concerning the preparation best adapted to the work of each.

REQUIREMENTS FOR ADMISSION TO THE SEVERAL COLLEGES AND COURSES

COLLEGE OF LETTERS AND SCIENCE.—The studies under I, and electives under II, to make fourteen units.

Students entering this college are advised to present Latin and a second foreign language, to the amount of at least six units. The requirements in foreign language for the degree of Bachelor of Arts are as follows: 16 unit hours for those who offer four years or more of language at entrance; 24 unit hours for those who offer less than four years of language at entrance. (See Index under Requirements for Degrees.)

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COLLEGE OF ENGINEERING.—The following units are required of all:—

ENGLISH .....2 units
ALGEBRA .....1½ units
GEOMETRY .....1 unit
GERMAN OR FRENCH.....2 units
OR LATIN.....4 units
PHYSICS .....1 unit

The remainder of the required fourteen units must be made up from elections under II. Students are advised to present chemistry, advanced mathematics, and additional work in German or French. Students who enter without foreign language will find it difficult to complete any of the courses in engineering in four years.

All students entering the College of Engineering are required to pass an examination in algebra. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the time when they begin their course*, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the examination will not be permitted to enter the regular algebra classes for engineering students until the deficiency is made up.

COLLEGE OF AGRICULTURE.—The studies under I, and electives under II, to make fourteen units.

COLLEGE OF LAW.—(1.) Candidates for a degree: Credits equivalent to the work of the Freshman and Sophomore years in the College of Letters and Science. (2.) Not candidates for a degree: The studies under I, and the electives under II, to make fourteen units.

COURSE IN COMMERCE.—The studies under I, and electives under II, to make fourteen units.

PRE-MEDICAL COURSE.—The studies under I, and electives under II, to make fourteen units. Students entering this course are advised to present two units of Latin, inasmuch as the medical schools require this amount of Latin for entrance. The University offers a beginner's Course in Latin, without credit toward a degree. Students are also advised to present four units of German.

COURSE IN CHEMISTRY.—The studies under I, and electives under II, to make fourteen units.

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COURSE IN PHARMACY.—Four Year Course. The studies under I, and electives under II, to make fourteen units. No practical experience in pharmacy is required. Two Year and Three Year Course: (1) Graduates from high schools are admitted without examination and without practical experience in a drug store. (2) Non-graduates are admitted if they comply with the following requirements:

1. They must be at least eighteen years of age.
2. They must present satisfactory certificates of at least one year's attendance from some standard high school, or its equivalent from a similar educational institution.
3. The time intervening between the secondary education and the college course should have been spent in a drug store, where physicians' prescriptions are regularly compounded.

SCOPE OF THE PREPARATORY WORK

The following description serves to indicate the extent of the preparation expected in each of the several subjects named in the preceding requirements for admission:—

English

ENGLISH. 2, 3, or 4 units. All applicants for admission must present two units in English, one of which must consist of composition, and one of the reading and study of English classics. The two units required in English correspond in amount and character to the work of the first two years of the standard high school course, in which one-half of the time is devoted to theme-writing and instruction in the principles of composition, and one-half to the careful study of a number of English classics. It is recommended that applicants present at least three units in English, the third unit to consist of additional work in composition, and either (1) an outline history of English and American literature with the reading and study of representative selections of each period, or (2) the intensive study of a few typical examples of the novel, the drama, the lyric, and the essay. Four units of English should include composition, and both (1) and (2) given above, in addition to the two required units. A complete statement of the work for each unit of preparation is given in No. 1 of the High School Series of the Bulletin of the University of Wisconsin, entitled *The High School Course in English.*

COMPOSITION AND RHETORIC. Systematic practice in theme-writing with instruction in the principles of composition and the forms of discourse must form an important part of each unit of English presented for entrance. Every student entering the University is examined as to his ability to express himself in clear,

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correct, idiomatic English. The test consists in requiring the student to write an essay on a familiar subject, in which he plans his work by paragraphs, and constructs both paragraphs and sentences in accordance with the simpler principles of composition. No student will be passed in this test and permitted to pursue the course in Freshman English whose work shows serious weakness in spelling, punctuation, grammar, sentence construction, or division into paragraphs. Facility of expression will not be sufficient to offset marked deficiency in spelling, punctuation, grammar, or sentence structure. Students whose preparation in English composition is found to be deficient must make up such deficiency in one year under penalty of being dropped from the University.

READING AND STUDY OF ENGLISH CLASSICS. 2 units. The two units in English required of all applicants for admission must include the thorough study of at least ten of the English classics on the list of uniform college entrance requirements in English, or their equivalents. The first aim in the reading and study of these selections should always be to understand fully the thought expressed. It is necessary to understand each idea as expressed in the word, the allusion, or the figure of speech; to combine the ideas to get the thought of the sentence; and to follow the development of the thought from sentence to sentence in order to grasp the meaning of the paragraph, essay, story, or poem as a whole. The study of the form, the structure, the style, and the purpose of the selection; a knowledge of the author's life; the consideration of the relation of the selection to the age in which it was written; and a comparison of it with other works of the same type, all give a better understanding of the classic. Particular attention should be given to words and idiom in the reading with a view to increasing the students' command of language.

HISTORY OF ENGLISH AND AMERICAN LITERATURE. 1 unit. In addition to the two required units in English, applicants for admission may present one unit in history of English literature, or in the history of English and American literature. In designating this unit as a study of English and American literature, it is intended that the greater part of the time should be devoted to the reading of selections from representative authors of each period; and that in the study of the history of literature, which should not occupy more than one-quarter of the time, emphasis should be placed on general movements and tendencies in literature as shown in the selections studied. In the history of English

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literature characteristic selections from most of the following authors should be read: Chaucer, Shakespeare, Bacon, Milton, Pope, Addison, Goldsmith, Gray, Burns, Scott, Wordsworth, Coleridge, Keats, Shelley, Tennyson, Browning, Lamb, George Eliot, Dickens, and Thackeray. In connection with the history of American literature the student should be familiar with representative works of Longfellow, Whittier, Bryant, Holmes, Irving, Hawthorne, Cooper, Poe, Lowell, and Emerson. A study of the principles of composition and the application of them in theme-writing must be included in this unit.

ADVANCED STUDY OF CLASSICS. 1 unit. Besides the two units of required work in the reading and study of English classics, students may offer one unit representing advanced work in the study of literature corresponding to the fourth year of the standard high school course in English. This should consist of a thorough and intensive study of the form, the structure, and the style of typical examples of the novel, the drama, the lyric, and the essay. At least one work from each of the following four groups should be included for this unit: (1) Thackeray's *Henry Esmond;* Hawthorne's *The House of Seven Gables;* Dickens's *A Tale of Two Cities;* George Eliot's *Silas Marner;* (2) Shakespeare's *Macbeth, Hamlet, King Lear;* (3) Palgrave's *Golden Treasury* (First Series), Books II and III, or Book IV; Milton's *Lycidas, L'Allegro,* and *Il Penseroso;* (4) Burke's *Speech on Conciliation;* Webster's *First Bunker Hill Oration,* and Washington's *Farewell Address;* Macaulay's *Life of Johnson;* Macaulay's *Essay on Milton;* Carlyle's *Essay on Burns.* A study of the principles of rhetoric, with frequent and systematic theme-writing, must form a part of this unit.

LIST OF READINGS FOR FOUR UNITS. The following list contains the college entrance requirements in English for the years 1908 to 1911 and other selections adapted for reading and study. The Roman numerals following the titles indicate the unit or units for which the books may most profitably be read; Addison's *De Coverley Papers* (II, III); Addison and Steele's *Spectator* (II, III); Arnold's *Sohrab and Rustum* (II); Bacon's *Essays* (III); Blackmore's *Lorna Doone* (IV); Bunyan's *The Pilgrim's Progress,* Part One, (I, III); Byron's *The Prisoner of Chillon,* and *Mazeppa* (III); Browning's *Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts From Abroad, Home Thoughts From the*

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Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Herve Riel, Pheidippides, (III); Bryant's Translation of the *Iliad* and *Odyssey* (selections) (I, II); Burroughs' *Birds and Bees, Sharp Eyes, A Bunch of Herbs*, etc. (I, II); Burke's *Conciliation With America* (IV); Carlyle's *Essay on Burns* (III, IV); Carlyle's *Heroes and Hero Worship* (III, IV); Chaucer's *Prologue* (III); Coleridge's *Ancient Mariner* (II, III); Cooper's *Last of the Mohicans* (II, III); De Quincey's *Joan of Arc* and *The English Mail Coach* (III, IV); Dickens's *A Tale of Two Cities* (II, IV); Dickens's *Christmas Carol* (I); Emerson's *Essays* (selected) (III, IV); Franklin's *Autobiography* (I, II, III); Mrs. Gaskell's *Cranford* (III, IV); George Eliot's *Silas Marner* (IV); Goldsmith's *The Deserted Village* (II, III); Goldsmith's *Vicar of Wakefield* (II, III); Hawthorne's *House of Seven Gables* (III, IV); Hawthorne's *Twice Told Tales* (I); Irving's *Life of Goldsmith* (II, III); Irving's *Tales of a Traveler* (I, II); Irving's *Alhambra* (II); Irving's *Sketch Book* (I, II); Lamb's *Essays of Elia* (II, III); Lincoln's *Gettysburg Speech*, etc., (II, IV); Longfellow's *The Courtship of Miles Standish* (I); Lowell's *Vision of Sir Launfal* (I, II); Macaulay's *Lays of Ancient Rome* (I); Macaulay's *Essay on Addison* (III, IV); Macaulay's *Lord Clive* (II, IV); Macaulay's *Life of Johnson* (II, IV); Milton's *Lycidas, Comus, L'Allegro*, and *Il Penseroso* (III, IV); Palgrave's *Golden Treasury* (First Series) Books II and III with special attention to Dryden, Collins, Gray, Cowper, and Burns (III, IV); Palgrave's *Golden Treasury* (First Series) Book IV with special attention to Wordsworth, Keats, and Shelley (III, IV); Poe's Poems (III, IV); Poe's Short Stories (II, III); Pope's *Rape of the Lock* (III); Pope's *Essay on Man*, and *Essay on Criticism* (III); Ruskin's *Sesame and Lilies* (II, III); Scott's *Ivanhoe, Lady of the Lake*, and *Quentin Durward* (II, III); Shakespeare's *Julius Caesar*, (II, III); Shakespeare's *Hamlet, King Lear, Macbeth* (IV); Shakespeare's *As You Like It, Henry V, Twelfth Night*, and *Midsummer Night's Dream* (III); Shakespeare's *Merchant of Venice* (II; III); Spenser's *Faerie Queene* (selections) (III); Stevenson's *Treasure Island* (I, II); Thoreau's *Succession of Forest Trees* (I, II); Tennyson's *Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur* (II, III); Thackeray's *Henry Esmond* (IV); Warner's *A-Hunting of the Deer* (I); Washington's *Farewell Address* (II, IV); Webster's *First Bunker Hill Oration* (II, IV).

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Mathematics

ALGEBRA. 1 or 1½ units. The unit required of all students should include the following subjects: Addition, subtraction, multiplication, division, equations of the first degree with one unknown number, simultaneous equations of the first degree, factors, highest common factor, lowest common multiple, quadratic equations, simultaneous equations above the first degree, elementary theory of indices, and radicals.

An additional half year of algebra is strongly recommended, and is required of all engineering students. The work should cover the following subjects: Simultaneous quadratic equations; ratio, proportion and variation, including graphical representation of simple relations between two variables; arithmetical and geometrical progressions; binominal theorem for positive integral exponents; logarithms, including use of tables in simple numerical work.

GEOMETRY. 1 unit. Plane and solid geometry. In solid geometry special attention should be given to the geometry of the sphere.

TRIGONOMETRY. ½ unit. A knowledge of the important properties of the trigonometric functions, the addition theorem, and the more important formulas which follow from it, and the solution of the various cases of right and oblique plane triangles. The student should become familiar with the use of logarithmic and trigonometric tables.

GEOMETRY AND MECHANICAL DRAWING. ½ unit. Students who have taken work in geometry in addition to the unit required of all and have had an approved course in mechanical drawing may receive ½ unit credit therefor.

An additional credit of ½ to 1 unit may be given to students who have had further work in algebra, trigonometry and surveying, or other mathematics, but the total credit shall not exceed 4 units.

History, Civics, and Economics

HISTORY. 1, 2, 3, or 4 units. History may be offered in the following "blocks":

Ancient History to the year 800 A. D., 1 unit.
Medieval and Modern History, 1 unit.
Medieval and English History, 1 unit.
English History, 1 unit.
United States History, 1 unit.

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One, two, three, or four blocks may be presented. A real equivalent may be presented in place of a block recommended above, but one year's course in general history will not be accepted.

CIVICS. ½ or 1 unit. A knowledge of the relationships existing between subordinate and higher political units together with a description of the chief functions performed by the institutions of the various political units.

Civics may be combined with history or economics in the construction of an elective unit.

Commercial Law, ½ unit, may be offered under Civics.

ECONOMICS. ½ unit. Either (1) a knowledge of the leading facts relating to the rise and growth of modern industry, with special reference to the industrial history of England and the United States; or (2) a knowledge of the fundamental principles of economic science as presented in a good elementary treatise on the subject.

Commercial Geography, ½ unit, may be offered under Economics.

Science

BOTANY. 1 unit. The course in botany should cover a study of the life histories of types from the main groups of plants, and should include also a series of simple physiological experiments. At least two-thirds of the course should consist of laboratory work. For further details see the report of the committee of the Wisconsin State Teachers' Association for 1902 on a high school course in botany.

Where it is not possible to give a full year's work to the subject, botany may be combined with physical geography and physiology in the construction of units.

CHEMISTRY. 1 unit. A year's course of descriptive chemistry, consisting of both class-room and laboratory work. This course should include the more common metals and non-metals and their compounds. Two periods of laboratory work are considered as equivalent to one class exercise. A careful record of laboratory experiments should be kept, which must be submitted for examination by the committee on entrance examinations. Remsen's *Introduction to the Study of Chemistry*, Newell's *Experimental Chemistry*, and Storer and Lindsay's *Elementary Manual of Chemistry*, are suitable text-books among the many published. A laboratory manual should be used with any text.

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PHYSICS. 1 unit. A year's course in physics, including continuous and systematic laboratory practice; any one of the standard text-books may be used.

PHYSICAL GEOGRAPHY. 1 unit. The physical geography should include: (1) The principles as presented in the best recent text-books, which give adequate treatment of the atmosphere and ocean and emphasize the development of topographic forms. (2) Field study. The nature of this must be controlled by the locality; but every candidate offering physical geography will be expected to submit a statement of the field trips required in his course. (3) The interpretation and habitual use of topographic maps, weather maps, charts, and pictures.

Where it is not possible to give a full year's work to the subject, physical geography may be combined with botany and physiology in the construction of units.

PHYSIOLOGY. ½ unit. In this subject instruction must be given in anatomy, histology, and physiology of the human body, and the essentials of hygiene. The amount expected is indicated by that given in Martin's *The Human Body, Briefer Course.* The text-book work must be illustrated by charts and models, and the histology should also be shown by specimens.

ZOOLOGY. 1 Unit. Instruction in this subject must include as much as four periods of laboratory work per week. The student must dissect at least eight to ten types of animals and make careful descriptions and drawings of this work. The types must be selected from the different branches of the animal kingdom. Knowledge of life histories and habits and relation of environment is also expected. The laboratory work must be accompanied with class exercises, so that the student may gain an intelligent appreciation of the meaning of his observations and of the bearing on zoological science of the facts observed by him. Lectures or text-book work on classification and general zoology must be a part of the course. The nature and scope of work expected may be indicated by the text-books of Needham. Davenport, Jordan, and Kellogg.

Language

GREEK. 2 units. Grammar; Lessons; Xenophon's *Anabasis*, four books; Homer's *Iliad*, three books, or an equivalent amount of the *Odyssey;* Greek composition.

LATIN. 4 units. Grammar and elementary book; *Caesar*, four books, or an equivalent amount of *Nepos*, *Caesar* (at least two

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books) and selections; *Cicero;* six orations (selections from the letters may be substituted for two orations); *Virgil*, six books; composition; preferably in connection with *Caesar* and *Cicero.*

These requirements are planned with special reference to the needs of those candidates who purpose to continue in the University the study of ancient and modern languages and of history.

LATIN. 2 units. Grammar and elementary book; *Caesar*, four books or an equivalent amount of *Nepos*, *Caesar* (at least two books) and selections; composition. Students who so present two units and others whose preparation in Latin is, for any reason, deficient may continue the study in the University with course A, which may be credited towards the bachelor's degree. No such credit, however, will be given for third and fourth year high school Latin.

GERMAN. 2, 3, or 4 units. German may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study and approximately corresponding to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve." This report can be procured, at the price of sixteen cents, from D. C. Heath & Co., Boston, and should be in the hands of every secondary teacher of German.

A. Elementary German. 2 units. Applicants should be able to pronounce and to translate at sight (into good idiomatic English) simple German prose, help being given upon unusual words and constructions, to put easy English sentences into German, and to carry on a very simple conversation based upon the texts set for translation. The required amount of grammar is contained in the current "brief" grammars, or in the "first parts" of larger grammars like Joynes-Meissner or Thomas. Of the strong verbs only the more usual are required. Applicants should have read not less than 200 pages of easy German, chiefly modern narrative prose, but including some simple poems and one or two short plays. For suitable texts see the "Report," pp. 63-64.

B. Intermediate German. In addition to the work outlined under *A*, applicants should have read from 300 to 400 pages of moderately difficult prose and poetry, with constant practice, both oral and written, upon portions of the texts read. Of the latter about one-half should be taken from modern prose and the other half from poetry and the easier plays of Schiller, Goethe, or Lessing. The work in grammar, accompanied by exercises in compo-

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sition, should include the less usual strong verbs, the principal uses of prepositions, conjunctions, and modal particles, and the essentials of syntax and word formation. For suitable texts see the "Report," p. 71.

C. Advanced German. Besides the work outlined under *A* and *B*, applicants should have read from 400 to 500 pages of standard literature in prose and poetry, with reference reading in the history of modern German literautre, especially upon the lives and works of the authors studied. They should be able to translate at sight any ordinary modern German text that is free from unusual difficulties, to write a brief German essay on a simple topic relating to the texts read, and to follow a recitation conducted in German, answering in that language questions asked by the instructor. For suitable texts see the "Report," p. 73.

Students without preparation in German enter course 1. Those who have had two years of high school German will begin their work in the University with one of the courses 2, 2M, 2S, 2C, or 2E. Those who have had three years of German enter course 2A. Students who have studied German for four years in the high school regularly enter course 3A, unless their particular course of study requires a special class in German, as for example 3S, 3C, or 3E. See Index under German.

FRENCH. 2, 3, or 4 units. French may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study, and approximately corresponding in difficulty to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve," pp. 75-83.

A. Elementary French. 2 units. The applicant should have a thorough knowledge of the grammatical forms of the language, and possess a sufficient vocabulary to read simple texts with ease.

Fraser and Squair's grammar is being used at present in the University, emphasis being placed upon oral and written drill outlined in the first 161 pages. Not less than 600 pages of simple French should have been read with careful attention paid to pronunciation during the entire period. A list of suitable texts will be found on page 76 of the "Report of the Committee of Twelve."

B. Intermediate French. In addition to course *A*, the applicant should have read at least 600 pages of French chosen from nineteenth century classics, and done work in oral and written

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composition equivalent to that given in Fraser and Squair's *Complete French Grammar.*

C. Advanced French. One year's high school work in addition to *Intermediate French.* The applicant should be able to write a short composition in French and show his understanding of a simple lecture in French by answering questions upon it in French. He should also be familiar with the outline of French history and literature.

SPANISH. 2 units. Spanish may be offered for entrance as a subject of two units, corresponding to the amount of work done in the elementary course of the University. The student should have acquired a fair pronunciation, considerable facility in the translation of easier Spanish texts and a fairly accurate knowledge of grammatical principles and of regular and irregular verbs. The work in grammar should in scope be approximately the same as that contained in Parts I and II of Giese's *First Spanish Book and Reader.* About four hundred standard pages should have been translated, the following texts being regarded as especially suitable:—Ramsey's *Elementary Spanish Reader, Gil Blas, El Capitán Veneno,* Alarcon's *Novelas Cortas, El Pajaro Verde,* and at the end of the course, *Dona Perfecta* or *José.* The student should be taught the Castilian pronunciation.

Manual Training

1 unit. In order to present manual training for entrance, the applicant must have devoted 180 periods to each of the following two divisions of the subject:

(1) Shop Work { Wood work. Forging.

(2) Drawing { Freehand drawing. Mechanical drawing.

A note book containing a description and sketches of the shop work is required.

EXAMINATIONS AT THE UNIVERSITY

The regular examinations of the University are two in number, one in June and one in September. The earlier one is intended for those who wish to be examined while fresh from their preparatory studies, and for those who wish to test their qualifications at

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an early date in order that they may have time to make up deficiencies if necessary. The September examination immediately precedes the opening of the first semester.

For the current year the earlier examinations will be held on Thursday and Friday, June 11 and 12 beginning at 9 o'clock A. M. The later examinations will be held on Tuesday and Wednesday, September 29 and 30, beginning at 9 o'clock A. M. Students who are in any doubt as to their qualifications are urged to present themselves in June. All candidates are required to be present at 9 o'clock on the first day of the examinations.

Candidates for admission to the University may divide the subjects and take the examinations in two trials; but a failure to pass all of the subjects in the two trials will necessitate a complete re-examination.

The character of the entrance examinations is indicated by the extent of the preparation expected in each of the several branches, as described above under the heading Scope of the Preparatory Work.

ADMISSION UPON CERTIFICATE

ACCREDITED SCHOOLS.—Any high school or academy whose course of instruction covers the branches requisite for admission to the University may be admitted to its accredited list of preparatory schools after a satisfactory examination by a committee of the Faculty. Application for such an examination may be made by an officer of the school to the President of the University, on the basis of which a committee of the Faculty will examine the course of study and the methods of instruction in the school, and on their favorable recommendation and the concurrence of the Faculty it will be entered upon the accredited list of the University. No school will be placed upon the list whose course of study is not fully equal to the four-year course of high schools recommended by the State Superintendent. The graduates of such an approved school will be received by the University without examination, on the presentation of a certificate showing the satisfactory completion of the 14 required units, and containing the recommendation of the principal. Forms for such certificates, prepared by the University, must be used, and may be obtained from the Registrar. These certificates should be sent to the University before August 1st.

Any high school or academy with a complete four-year course

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whose course of instruction does not include foreign language may be admitted to the accredited list under the conditions stated above, provided that its course of instruction covers thirteen units in the subjects accepted for admission to the University. Graduates of such a high school or academy will be admitted upon certificate, under the conditions for admission without foreign language. (See Index under Admission.)

Principals of accredited schools are requested to note the statement regarding the examination of freshmen in English, as stated under the heading Scope of the Preparatory Work (see Index), and also the statement regarding the additional requirement and examination in algebra for admission to the College of Engineering, as stated under Requirements for Admission (see Index).

The University desires to keep itself fully informed regarding the work of its accredited schools by means of annual reports and frequent inspections. Every accredited school is required to report each year concerning its teachers, course of study, methods of instruction, and material equipment. Blank forms are furnished by the University for this purpose. The University sends out inspectors at its own expense and at the convenience of the members of the staff. Especial attention is called to the necessity of promptly notifying the Secretary of the Committee on Accredited Schools of changes in the dates of examinations and vacations. The list of accredited schools will be published near the end of the academic year; it will be sent to all accredited schools and to all high schools in the State of Wisconsin. Copies of the list may be had upon application to the Registrar.

GRADUATES OF NORMAL SCHOOLS

The certified standing of any student in the regular courses of the Normal schools of this state will be accepted for entrance to the University in place of an examination in the subjects covered by the certificate.

The University offers a course designed especially for Normal school graduates leading to the degree of Bachelor of Philosophy. This course includes advanced instruction in education and those studies in history, languages, and science, both required and elective, which will best fit the student for the successful conduct of his chosen profession. To this course graduates of the advanced courses of the Wisconsin Normal schools will be admitted with the rank of junior on the presentation of their diplomas.

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Graduates of the Normal schools of the State who desire to become candidates for the degree of Bachelor of Arts will be given credits towards that degree as follows:—

a. All graduates of the advanced courses in a Wisconsin Normal school shall receive a credit of 38 unit hours, provided that, before entering the advanced course of the Normal school must have had the full equivalent of a four years standard high school course, as given in a high school on the accredited list of this University. But those graduates who enter without having absolved the University entrance requirements in foreign language before entering the advanced course of the Normal school must meet this requirement before graduation from the University. This will ordinarily require extra work to the extent of four hours a week for one year, which may not be credited as part of the 120 unit-hours required for graduation.

b. A graduate who has had the preparatory work specified in *a*, and who, during his course at the Normal school, has elected his studies with special reference to attending the University, may, on application, secure additional credits to an amount not exceeding a total of 45 hours.

c. A student who applies for such additional credit must present a full statement of his work at the Normal school, which will be examined and rated by the Committee on Advanced Standing. The studies presented for a credit under this agreement must be fully equivalent to the corresponding courses in the University. Credit beyond 38 hours will ordinarily be granted only to students who present college work in foreign languages. Application for laboratory credit in science must be accompanied by laboratory or field books. No credit will be given for any work in the Normal school done in a quarter when more than 20 hours per week were taken, except on special recommendation of the president of the school.

Graduates of the Normal schools of other states are admitted to the University under the same general conditions as obtain for graduates of the Wisconsin Normal schools, except that no credit will be given greater in amount than that granted by the state university of that state to the school in question.

STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES

Students from other institutions, who have pursued standard college courses equivalent to those of the University, will be ad-

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mitted, and will receive credit for such courses upon the presentation of proper certificates of creditable standing and honorable dismissal.

By arrangement with Beloit College, Lawrence University and Ripon College, students of these institutions who have satisfactorily completed the work of the sophomore year will be admitted to junior rank in the College of Letters and Science. In case of migration at an earlier period than the end of the sophomore year, proportional credit will be given. Students who complete two years of work at Beloit, Lawrence and Ripon will be admitted to the College of Engineering of the University of Wisconsin on the same conditions as students who transfer to that college from the College of Letters and Science of the University of Wisconsin. Students of senior rank from Beloit, Lawrence and Ripon who enter the College of Law will receive credit for their law studies toward graduation in the institution from which they come, to amounts to be determined by those institutions.

Students of other colleges of good standing who have not taken standard courses, but who have studied at least one year in the college proper, may be admitted to the University provisionally. In such cases the amount of credit will be determined by the Committee on Advanced Standing. The University reserves the right to test by examination the records presented.

No person will be admitted to the University later than November 1st of the year in which he expects to graduate.

ADMISSION OF ADULT SPECIAL STUDENTS

Persons twenty-one years of age who do not possess all the requirements for admission, and are not candidates for a degree, but wish to take special studies in the College of Letters and Science and the College of Agriculture, are permitted to do so upon giving satisfactory evidence that they are prepared to take the desired studies advantageously. This privilege is granted in the College of Engineering only to such students as are able to meet all of the entrance requirements in mathematics. The privilege is not granted in the College of Law.

Adult special students who desire subsequently to become candidates for a degree must satisfy the regular entrance requirements.

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FEES AND EXPENSES

GENERAL REQUIREMENTS

All fees must be paid at the beginning of each semester. Until this has been done, cards entitling the student to admission to classes will not be issued.

Graduate students pay the same fees as undergraduates of the College of Letters and Science, whether they are in attendance at the University or are studying *in absentia;* but all fellows and graduate scholars are exempt from the non-resident tuition fee, and honorary fellows and honorary scholars are exempt from both the non-resident and incidental fees. Graduate students *in absentia* pay the same fees as resident students, provided that after such students have paid fees to the amount they would naturally pay, if residents, for the degree for which they are candidates, no further fees will be required. Members of the instructional force who are candidates for higher degrees, pay the same fees as graduate students; but the total fees required are limited to the aggregate sum which is required of students giving their entire time during the period ordinarily required to obtain the degree sought.

All male students of the University are required to pay a gymnasium fee of one dollar per semester, except Short and Dairy Course students in Agriculture, who pay seventy-five cents for the year.

Tuition is free for all students from the State of Wisconsin. The liability of students to pay tuition charges, as distinguished from incidental fees, shall be determined by the Registrar.

An additional fee of one dollar per semester must be paid by students who pay their fees after the prescribed registration days. (See Calendar.)

From students entering after one-half of a semester or term shall have elapsed, only one-half of the prescribed tuition and fees shall be collected.

Upon the recommendation of the Commandant of the department of Military Science, the Secretary of the Regents is author-

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ized to remit fees to the extent of $10 per semester to company officers of the battalion having the rank of captain or above, and to award a prize of $50 at the end of each year of service of the field officers, colonel, lieutenant colonel, and adjutant.

TUITION AND FEES

College of Letters and Science

Resident tuition	FREE.
Non-resident tuition, per semester	$15 00
Incidental fee for all students, per semester	10 00
Gymnasium fee for all men students, per semester	1 00
Additional fee for students, electing studies in the College of Law, per semester hour	3 00

College of Medicine

Resident tuition	FREE.
Non-resident tuition, per semester	$20 00
Incidental fee for all students, per semester	15 00
Gymnasium fee for all men students, per semester	1 00

College of Engineering

Resident tuition	FREE.
Non-resident tuition, per semester	$20 00
Incidental fee for all students, per semester	15 00
Summer vacation work	7 00
Gymnasium fee for all men students, per semester	1 00

College of Agriculture

Resident tuition	FREE.
Long Course, non-resident tuition, per semester	$15 00
Incidental fee for all Long Course students, per semester.	10 00
Incidental fee for all Short and Dairy Course students, per term	5 00
Tuition fee for non-resident Short and Dairy Course students, per term	15 00
Lecture fee for non-resident Short and Dairy Course students, per term	10 00
Gymnasium fee for Long Course students, per semester	1 00
Gymnasium fee for Short and Dairy Course students, per semester	75

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Farmers' Course, resident tuition	FREE
Farmers' Course, non-resident tuition	$5 00
Farmers' Course, non-resident incidental fee	5 00

College of Law

Resident tuition	FREE.
Non-resident tuition, per semester	$15 00
Incidental fee for all students, per semester	10 00
Gymnasium fee, per semester	1 00
Locker, per annum	1 50

The fee for students in other colleges of the University who elect law studies is $3 per semester hour, provided such extra charge shall not exceed $25 per annum.

Summer Session of the College of Letters and Science and Summer Session for Apprentices and Artisans

General fee	$15 00

Summer School of Law

General fee	$25 00
Per term hour	4 00

Summer School of Library Science

Resident tuition	FREE.
Non-resident tuition	$20 00

School of Music

Persons who are members of other colleges of the University may take the general courses in music without charge. Members of the School of Music and other departments, who take special lessons, will pay fees as stated in the announcement of the school on a subsequent page of this catalogue.

REGULATIONS FOR DOCTOR'S THESIS

Each candidate for the degree of Doctor of Philosophy must deposit in the University library one hundred printed copies of his thesis. If the thesis is printed in a journal or as a bulletin of the University, reprints therefrom will be accepted by the library, but these must be provided with a special cover in proper

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thesis form. The candidate may receive his diploma before the thesis is printed, provided a written or typewritten copy of the thesis is deposited with the Librarian, and the sum of $50 with the Secretary of the Regents. The money will be returned on presentation to the library of the required number of printed copies of the thesis.

LABORATORY FEES

BIOLOGICAL LABORATORIES.—The laboratory fee for the elementary course in biology and for the other five-fifths courses is $8 per year, or $4 per semester. The fee for comparative anatomy is $5 a semester; for histology and embryology $10 a semester. The fees for human anatomy are: osteology, $2; dissection, $10 per part dissected. There is also a breakage fee of $2.50 a semester. The laboratory fee for physiology is $5 per semester, with an additional breakage fee of $5; for physiological chemistry the fee is $15, of which $5 is returnable. The fee for bacteriology is $1.50 for each unit-hour of credit.

CHEMICAL LABORATORIES.—In these laboratories the deposit is from $15 to $25, depending upon the amount of work taken. The amount refunded will depend on the chemicals used and the care exercised by the student.

GEOLOGY AND MINERALOGY.—Blowpipe analysis, per semester, $6; blowpipe analysis, two-fifths study, $4; three-fifths study, $6; petrography, per semester, $6.

HOME ECONOMICS.—Course 3, $3.00; Course 4, $3.00; Course 5, $2.00.

PHYSICAL LABORATORIES.—The laboratory fee in the physical laboratories is $2 for each unit-hour (two hours per week of actual work) per semester.

PSYCHOLOGICAL LABORATORY.—The laboratory fee for the course in experimental psychology is $3; for other experimental work $3 per semester, or $5 per year.

COLLEGE OF MECHANICS AND ENGINEERING.—The charge for laboratory work is $2 per unit-hour (two hours per week of actual work) per semester. There is also a charge of $1 per year for periodicals, supplied to the engineering reading room.

COURSE IN PHARMACY.—See Chemical and Biological laboratories.

COLLEGE OF AGRICULTURE.—The fees required of graduate and long course students in the several laboratories are: Chemistry,

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$1 per unit-hour per semester, with a minimum refundable breakage deposit of $2.50; bacteriology, $1.50 per unit-hour per semester, with a refundable breakage deposit of $2.50; dairy, $1 per unit-hour per semester, with a refundable breakage deposit of $2.50; agricultural engineering, 50 cents per unit-hour per semester, with a minimum refundable breakage deposit of $2.50; soils and horticulture, each $1 per unit-hour per semester. Resident short course students pay a laboratory fee of $2. Non-resident short course students pay a laboratory fee of $12. All short course students in the winter dairy course pay a laboratory fee of $10, and in the summer course $5. Non-residents in the winter dairy course pay a laboratory fee of $20, and in the summer course $15. All dairy course students pay a refundable key and breakage deposit of $2.

GYMNASIUM PRACTICE AND MILITARY DRILL

Young men of the College of Letters and Science, College of Mechanics and Engineering, and the four-year courses in agriculture and pharmacy, are required to take gymnastic exercises during the first two years of their course, and are also required to take military drill. Students required to drill must provide themselves with a uniform, of color and pattern required by the Regents, the cost of which is about $15.

Gymnasium fee, per semester.....$1 00
Locker fee, per year..... 1 50

Young women are required to take gymnastic exercises during the first two years of their course. A gymnasium fee of $1 per year is required, and $1 additional from those who make use of a locker. They must also provide themselves with a suitable costume, directions for which will be found on a subsequent page under the head of Physical Training. (See Index.)

CHADBOURNE HALL

The price of rooms in Chadbourne Hall varies from $60 to $132 a year according to location. A circular giving detailed information may be obtained by addressing the Secretary of the Regents.

Applications for rooms in the Hall may be made at any time to the Bursar of the Regents, and must always be accompanied by a deposit of $10. The fifteen sophomores and ten juniors

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resident in Chadbourne Hall first applying for rooms in the Hall on or after January 1, will be accepted, and will be given their choice of rooms until February 1. With these exceptions, applications will be received only from freshmen and sophomores until August 1, after which applications from juniors and seniors will be received up to the capacity of the Hall.

Rooms are assigned August 1st by the Mistress of the Hall in the order of application. The deposit of $10 required from all students when making application will be credited on the rent of the room for the second semester if taken; but if not taken, it will be forfeited, unless notification is received by the Mistress prior to August 15th. The balance due for rent must be paid to the Bursar not later than the second week after the beginning of each semester.

If for any reason one of the occupants of a suite shall be obliged to give up her place in the suite, the remaining person may be required to take a single room if one is vacant, or pay the price of the full suite during the time it is occupied by her alone. All applicants are supposed to retain their rooms for the entire year, or forfeit the $10 deposit.

A person entering the Hall for the second semester only shall pay the price of the room charged for the second semster, with the additional sum of $10.

The rooms of Chadbourne Hall are provided with rugs and furnished, but occupants are expected to provide washstand furniture, towels, napkin rings, sheets, pillow cases, counterpanes and blankets. The present cost of board in Chadbourne Hall is $3.75 per week.

Chadbourne Hall has accommodations for one hundred women students. Applications will be received in excess of one hundred, and vacancies during the year will be filled in regular order from the waiting list. The Hall is lighted by electricity, and the heating apparatus is connected with the central heating plant, so that the danger from fire is minimized. Elevators operated by electricity connect the several floors.

The young women who occupy this building are under the immediate charge of the Mistress; they must board in the Hall, and are expected cheerfully to conform with requirements necessary for a family of students.

An account of the woman's gymnasium in Chadbourne Hall, may be found under the heading Physical Training. (See Index.)

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ROOMS AND BOARD

Rooms, furnished and unfurnished, can be obtained in the city at prices per week ranging from $2 to $5 a person. The cost of board in clubs is from $3 to $4 a week; in private families and boarding houses from $3.50 to $4.50 a week. Many students obtain rooms or board in families or clubs by rendering service; but these places are eagerly sought for, and cannot always be obtained at once. Those dependent upon themselves for support should not come to the University unless they have a reasonable fund.

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DEGREES

FIRST DEGREES

The following baccaulaureate degrees are conferred upon those who have successfully completed the prescribed courses of study, and who have complied with all other requirements of the University:—

Academic

BACHELOR OF ARTS, upon the graduates in the College of Letters and Science, except those from the course for Normal school graduates, and from the course in Pharmacy.

BACHELOR OF PHILOSOPHY, upon the graduates from the course for Normal school graduates.

Professional and Technical

BACHELOR OF LAWS.

BACHELOR OF SCIENCE IN AGRICULTURE.

BACHELOR OF SCIENCE, CIVIL ENGINEERING COURSE.

BACHELOR OF SCIENCE, SANITARY ENGINEERING COURSE.

BACHELOR OF SCIENCE, MECHANICAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, GENERAL ENGINEERING COURSE.

BACHELOR OF SCIENCE, APPLIED ELECTROCHEMISTRY COURSE.

BACHELOR OF SCIENCE, PHARMACY COURSE, upon graduates from the four-year course in Pharmacy.

BACHELOR OF SCIENCE, MEDICAL COURSE.

GRADUATE IN PHARMACY, upon graduates from the two-year course in Pharmacy.

GRADUATE IN MUSIC, upon graduates from the four-year course in Music.

A graduate of any of the courses may receive the baccalaureate degree of any other course by completing the additional studies required in that course. But two baccalaureate degrees cannot be taken in one year, and for a second bachelor's degree in the Col-

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lege of Letters and Science there are required one year's additional study and a special thesis.

The conditions on which the bachelor's degrees are given will be found stated under the appropriate colleges and courses on subsequent pages.

HIGHER DEGREES

The highest degree that the University confers in course is that of *Doctor of Philosophy*. The degree of *Master of Arts* is conferred as a second degree upon candidates who have received the degree of *Bachelor of Arts* or an equivalent, and the degree of *Master of Science* or *Master of Philosophy* upon candidates who have received the corresponding baccalaureate degrees. Candidates who have taken the degree of *Bachelor of Science* in one of the engineering courses may receive the degree of *Civil Engineer*, *Mechanical Engineer*, or *Electrical Engineer*. The degree of *Master of Pharmacy* is conferred as a second degree upon *Graduates in Pharmacy*.

The condition on which these higher degrees are granted will be found stated under the Graduate School, and also under the various colleges.

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REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

1. General Conditions

The unit-hour is the standard for computing the amount of work required for graduation. This is equal to one hour of recitation or lecture per week for one semester. Two hours of laboratory work or two hours regularly prescribed military drill or physical exercise in the gymnasium are credited as one unit-hour. Students are expected to take 15 hours per week in recitations, lectures, and laboratory work, making 30 unit-hours per year, and 120 for the course. In addition two hours per week (one unit-hour per semester) of gymnastics are required during the first two years, making a total of four unit-hours. Men are required to drill two hours per week during the first two years, giving a credit of four unit-hours. The total requirements for class-room work, military drill, and the gymnasium are, therefore, 128 unit-hours for the men, and 124 for the women.

Students excused from drill or gymnastics are required either to make up the work before graduation, or if the excuse is based on permanent incapacity, to make good the requirement by work in other departments.

No student will be permitted to receive a credit toward graduation of more than eighteen unit-hours in one semester in regular studies except by permission of the Faculty, obtained in advance.

Students transferring from the Course in Commerce, or from another college of the University, can receive no more than fifteen unit-hours' credit per semester toward graduation for work al-

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ready done, except in semesters where all standings are 85 or above.

2. Required Studies

a. English, 6 unit-hours (3 hours per week for two semesters); to be taken in the first year of residence.

b. Language: 16 unit-hours for those who offer four years or more of language at entrance; 24 unit-hours for those who offer less than four years of language at entrance. The work shall be in year courses in two languages. Ordinarily the two must be chosen from the following groups: Greek (classical), Latin, French, German; but advanced work in another foreign language, to an amount not exceeding eight units, may be substituted in part fulfillment of this requirement, on the following conditions:

(1) The student must study the language more than one year. (2) Only the work beyond the first year ("advanced work"), can be substituted. The first year's work will be accepted toward the required units for graduation, though not as part of the required units of language.

c. Two of the following: Natural Science, 10 unit-hours; Mathematics, 6 unit-hours; History, 6 unit-hours.

Under natural science are included biology, chemistry, physics, and geology. The latter science cannot be taken in the freshman year; the others may be so elected. All are five-hour courses with laboratory work, or field work in geology.

3. Major Study and Thesis

Major Study.—At the beginning of the sophomore or the junior year, every candidate for the degree of Bachelor of Arts shall select as his major subject the work of some one department in the College of Letters and Science. This department will determine the manner in which the work of the major shall be completed; the work required in the major (including thesis and required work) shall not be less than 20 hours, nor more than 40 hours; the credit for the thesis being four hours.

Thesis.—All candidates for a baccalaureate degree are required to present a graduating thesis the subject of which must be approved by the student adviser and the professor at the head of the department in which the candidate is doing the work represented by the thesis. The thesis must represent some phase of

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the student's work in the major study, and must have the character of a scholarly dissertation on the subject. The thesis must be typewritten on paper of good quality, 8x10 inches in size, and must be bound according to specifications furnished by the Librarian of the University. It must be deposited in the University Library by June 10th.

Before the thesis is accepted, it must be approved by the instructor under whom the work has been done, and by the head of the department. When accepted, the thesis becomes the property of the University.

4. Electives

All work not included in 2 and 3 is elective, but there shall not be taken in any one department more than 40 hours, including required work in excess of 6 hours, major, and electives. However, high school work for which university credit is given shall not count as a part of these 40 hours.

5. Studies of the Freshman Year

In this year one study only is absolutely required: English, course 1, three hours per week. All the other studies of the year must be chosen from the following groups:

GROUP I. At least one subject must be taken from this group and not more than 10 unit-hours may be chosen from any one subject.

Greek: 5 or 3 hours per week.
Latin: 5 or 3 hours per week.
German: 4 hours per week.
French: 4 hours per week.
Spanish: 4 hours per week (in the Course in Commerce).

GROUP II. At least one subject must be chosen from this group. Not more than 10 unit-hours can be taken in any one subject.

Mathematics:
Algebra: 3 hours, one semester.
Trigonometry: 3 hours, one semester.

These courses in Mathematics are repeated each semester.

Science:
Biology: 5 hours.
Chemistry: 5 hours.
Physics: 5 hours.

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Astronomy: 3 hours, one semester.
Physiography of the United States: 3 hours, one semester.
Physical Geography: 3 hours, one semester.

History:
Ancient History: 2 hours.
English History: 3 hours.
Medieval History: 3 hours.

The student may take 14, 15, or 16 hours from these studies. The combination may be made by adding to English (3 hours) two foreign languages from Group I (6 to 10 hours), with one subject from Group II (3 to 5 hours); or by taking but one foreign language (3 to 5 hours) with two subjects from Group II (6 to 10 hours). Students are advised to carry on the language, or languages, which they have had in preparatory schools. Those who come with a language preparation consisting only of two years of German will be expected to continue that subject during the freshman year.

The following courses which are open to freshmen will be found described under Departments of Study on the following pages. The figures following the name of the department refer to the number of the course as given under the proper heading under Departments of Study.

English 1, Greek A, Greek 1, Latin A, Latin 1 and 2, French 1, 4, and 10, German 1, 2, 2A, Mathematics 1 and 2, History 1, 5, and 10, Biology 1, Chemistry 1, Physics 1, Astronomy 1. The last named course cannot constitute a part of the required science.

ELECTION OF STUDIES IN OTHER COLLEGES

Candidates for the degree of Bachelor of Arts are allowed to elect in the College of Mechanics and Engineering, the College of Law, the College of Agriculture, the Course in Pharmacy, the Course in Commerce, the Course in Music, the Course in Home Economics, or the State Library School, certain studies enumerated below to an amount not to exceed the equivalent of twenty unit-hours. This privilege will not be extended to Normal graduates attempting to graduate in two years, nor to undergraduates of other colleges who enter this University with the rank of seniors.

When approved by the Dean of the College of Engineering, an

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additional election of six hours is permitted in the case of students who propose to proceed to the degree of Bachelor of Science, Civil Engineering.

In the application of the twenty-hour rule, above set forth, candidates for the degree of Bachelor of Arts, with the exception of seniors taking law studies, are not allowed to elect more than five of the twenty hours in any one semester. Studies in the College of Law may be elected only by seniors.

Students who take the combined law and arts course in six years are not permitted to count toward their A. B. degree studies which are parallel to studies at present required in the College of Law. Such studies are the course in Commercial Law, in the Course of Commerce (course 9, in the department of Political Economy), and course 13, Constitutional Law, in the department of Political Science.

Students who have graduated from the College of Letters and Science will be admitted to second year standing in the College of Law, provided that while seniors in the College of Letters and Science they completed fourteen semester hours in the prescribed work of the first year of the College of Law, and in addition thereto have completed six semester hours of work in the College of Letters and Science from a group of studies to be designated by the Faculty of the College of Law. The studies designated for 1908-09 are as follows: Political Science 2, (Elementary Law), Political Science 9, (Roman Law), Political Science 18, (American Constitutional Law), Political Science 18, (International Law), Political Science 27 (Comparative Legislation).

The following studies may be elected:

In the College of Engineering:

Mechanical Drawing, courses 1, 2, and 3.
Applied Mechanics, 1, 2, 3, 4, 5, and 6.
The Materials of Construction, 1, 2, and 3.
Topographic and Geodetic Engineering, 1, 2, 3, 4, 5, and 6; also 9 and 10.
Railway Engineering, 5.
Hydraulic Engineering, 1 and 2.
Structural and Sanitary Engineering, 1, 2, 3, 10, and 11.
Municipal and Sanitary Engineering, 1, 2, and 4.
Steam Engineering, 3, 4, and 5.
Mechanical Laboratory, 1 and 2.

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Machine Design, 1, 3, and 4.
Applied Electromagnetism and the Construction of Dynamos, 1 and 2.
Alternating Currents and Alternating-current Machinery, 1, 2, 3, 4, 5, and 6.
Applied Electrochemistry and Electrometallurgy, 1, 2, 3, and 5.
Electric Installations, 4 and 10.

In the College of Law:

Administrative Law 1, 2, 3, 4.
Contracts.
Commercial Paper.
Real Property.
Torts.
Private Corporations.
Constitutional Law.
Wills.
Domestic Relations.
Common Law Pleading.
Equity.
Evidence.
Agency.
Public Service Companies.

The law courses in italics may be taken only after suitable preliminary studies. Applications for these advanced studies must be made to the committee in charge, consisting of the Dean of the College of Law and Professor Reinsch.

In the College of Agriculture:

Agricultural Chemistry, 1, 2, and 4.
Soils, 1 and 2.
Animal Husbandry, 24.
Veterinary Science, 25.
Horticulture, 6, 7, and 8.
Bacteriology, 20.
Farm Engineering, 2.

In the Course in Commerce.

All courses except the one in Business Administration, which can only be taken in addition to the required 120 units, by students of suitable preparation.

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In the Course in Home Economics:

Courses 1 to 10 inclusive.

In the Course in Pharmacy:

All courses except Pharmacognosy under botany and the courses in the department of Pharmacy.

In the Course in Music:

Courses 2 to 15, inclusive.

The courses which may be elected in the State Library School include those on Reference, Loan, Classification, Library Economy, Public Documents, Subject Bibliography, Cataloguing, Book Selection, and such other courses as may be agreed upon by the Director of the Library School and the Dean of the College of Letters and Science, or some member of the Faculty appointed by him. They may be elected only by qualified candidates in the junior and senior years, to the amount of ten hours in each year; standings in them shall be approved by the Committee on Advanced Standing.

REQUIREMENTS FOR A DEGREE IN THE COURSE IN COMMERCE

Students who have completed the regular four years' course of the Course in Commerce will receive the degree of *Bachelor of Arts*. (See Index.)

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

Students who have completed the regular four years' course of the Course in Pharmacy will receive the degree of *Bachelor of Science, Pharmacy Course*. (See Index.)

REQUIREMENTS FOR A DEGREE IN THE COURSE IN MEDICAL SCIENCE

Students who have fulfilled the necessary requirements will receive the degree of *Bachelor of Science, Medical Science Course*. (See Index, College of Medicine.)

The departments which constitute the College of Medicine are at present also constituent departments of the College of Letters and Science. The courses offered in these departments are open for election to any students in the College of Letters and Science who are prepared to take them. Candidates for the degree of

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Bachelor of Arts are not permitted to matriculate in the College of Medicine for more than one year. Candidates for the degree of *Bachelor of Science (Medical Science Course)* may be registered two years in the College of Medicine. They may, with the consent of their advisers, elect up to eighteen unit-hours of work per semester, and may confine their work to the science and language groups of studies. The language requirements are those required for admission to the College of Medicine (see Index).

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Course for Normal School Graduates

Graduates of the advanced courses of the Normal schools of the State are admitted to advanced standing in the College of Letters and Science on conditions given under the heading Admission (see Index). The following special course for Normal school graduates has been arranged, leading in two years to the degree of *Bachelor of Philosophy*. The course contains a minimum required amount of advanced studies in Philosophy and Education, with opportunity for further elections in those subjects. It requires also a continuous study of foreign language during the two years of the course. In other directions the student may elect his studies. It is expected that the Normal school graduate will give especial attention to fitting himself for teaching in one or two of the main lines of instruction, and the requirements and electives have been so arranged as to permit him to attain this end. He may devote himself especially to science, to literature, to history, or to any combination of these studies. He will be required, however, to make one of these lines of study his major work, and will not be permitted to elect a large number of short, scattered courses of instruction, since it is the especial design of this course to enlarge and complete his knowledge in certain definite directions.

The attention of the student is called to the necessity of planning his course from the beginning so as to satisfy the requirements for a thesis.

Junior Year: Latin, French, or German 4; philosophy 3; advanced education 3; language, history, English, advanced mathematics, or science 5; electives 3 to 5: 18 hours per week required.

Senior Year: Continuation of Latin, French, or German 4; electives 12; thesis 2: 18 hours per week required.

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Any member of the course who offers work in foreign language equal in amount to that required of candidates for the degree of Bachelor of Arts, will not be required to pursue courses in foreign language in the University; and no student in this course will be required to do more work in foreign language than is demanded for the degree of Bachelor of Arts.

Military drill and gymnastic exercises are not required of Normal school graduates, no matter what course they may enter.

GRADUATION IN LESS THAN FOUR YEARS

The attention of students is called to the announcement of the Summer Session of the University, as given on subsequent pages of the Catalogue. Work in the Summer Session will be credited in the same way as work in the regular session of the University, and by attendance at one session a total amount of credit may be acquired not exceeding six unit-hours.

Candidates for the degree of Bachelor of Arts who desire to graduate in three years may do so by taking 18 hours of recitations per week and by attending three summer sessions. Permission to take work to this amount will be given only to students whose standing in their studies is wholly satisfactory. No credit will be given for repetition in the Summer Session of studies taken in the regular session of the University, or for repeating in the University work done in the summer. Students will need to select carefully their work for the summer with reference to the required and elective studies of the course in which they intend to graduate. The Summer Session offers exceptional opportunities for the preparation of a senior thesis. Any student who expects to shorten his course by means of the Summer Session should consult his class adviser in selecting his studies.

STUDENT ADVISERS

Upon entrance, each student in the College of Letters and Science is assigned to a member of the Faculty who acts as his adviser during the freshman and sophomore years. At the beginning of the junior year, at which time, if not before, the student selects his major study, a professor in the department in which his major is chosen becomes his adviser. Each semester, the student is required to consult his adviser concerning the choice of

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studies, and the adviser must give his approval before the student is permitted to enter classes.

THE UNIVERSITY TEACHERS' CERTIFICATE

In accordance with the laws enacted by the legislature of 1907, section 458b-2, certificates are issued to all graduates of a regular collegiate course who complete the course in pedagogical instruction prescribed by the University of Wisconsin. This certificate, when presented to the State Superintendent, entitles the holder to receive a license to teach in any public school in Wisconsin for one year. Graduates who have received this certificate and present satisfactory evidence of good moral character and one year of successful teaching after graduation, are entitled to receive from the State Superintendent an unlimited state certificate.

Requirements for Teachers' Certificate

A requirement of twelve hours of pedagogical instruction has been prescribed by the University Faculty for the certificate above mentioned, consisting of:

Psychology (Philosophy 1), *three hours.*
Departmental Teachers' Course, *two hours.*
Education, *seven hours.*

(a) Credit must be obtained in at least one of the following courses: Education 1a, 1b, 13a, 13b, or 41. (b) The remaining hours must be made up by electives from the following: Education 11a, 11b, 4a, 4b, 5, 15, 16, or from those courses mentioned in (a) not already completed. Course 15 (Contemporary Educational Movements) may not be elected by students who have completed course 4a, or 4b, or 13a, or 13b. Course 16 (Educational Classics) may not be elected by students who have completed course 1a, or 1b.

As a part of this seven hours an option of a *second* departmental teachers' course of two semester hours is permitted.

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DEPARTMENTS OF INSTRUCTION

PHILOSOPHY

PROFESSORS JASTROW, MCGILVARY, SHARP; ASSISTANT PROFESSOR BODE, AND MR. SUTHERLAND.

The student is at liberty to begin his work in philosophy with any of the courses designated as primarily for undergraduates. But those who desire to take three hours' work through one year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 1 or 31 in the first semester, and either 11, 21, 32, or 41 in the second semester.

The requirements for an undergraduate major in philosophy are a minimum of twenty semester hours, including the thesis. Of these, at least eight hours must be taken from the courses for undergraduates and graduates.

Primarily for Undergraduates

1. Psychology: Introductory Course. *First semester.* Professors JASTROW and SHARP, Assistant Professor BODE, and Mr. SUTHERLAND.
   Section 1. *Tu., Th., at* 9, *and F., at an hour to be arranged.* Professor JASTROW and Mr. SUTHERLAND.
   Section 2. *M., W., at* 8, *and F., at an hour to be arranged.* Professor SHARP and Assistant Professor BODE.

11. Logic. *First semester; M., W., F., at* 10 *and* 11. Repeated in the *second semester; M., W., F., at* 8 *and* 10. Assistant Professor BODE.

21. Introduction to Philosophy. The relation of philosophy to the special sciences; the problems of philosophy and the various solutions that have been suggested; the tendencies of present-day thought. *Second semester; M., W., F., at* 9. Professor MCGILVARY.

22. German Philosophy as Reflected in German Literature. The philosophical teachings of Lessing, Herder, Goethe, Schiller,

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the Romanticists: Hebbel, Wagner, and Nietzsche. *First semester: Tu., Th., at* 10. (Omitted in 1908-09.) Assistant Professor BODE.

23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature. A study of Wordsworth, Carlyle, Emerson, Arnold, Tennyson, and Browning. *Second semester; Tu., Th., at* 10. Assistant Professor BODE.

24. The Philosophy of Religion. The conception of God in Christian theology and in modern philosophy; the nature of religion; the relation of religion to revelation, miracle, dogma, and morality. *Second semester; Tu., Th., at* 11. Assistant Professor BODE.

25. The Relation of Man to Nature. The existence of purpose in nature; the influence of the doctrine of evolution upon our conception of man's place in the universe and upon theism; the problem of freedom; the problem of evil. *First semester; Tu., Th., at* 11. Assistant Professor BODE.

31. History of Ancient and Medieval Philosophy. *First semester; M., W., F., at* 11. Professor MCGILVARY.

32. History of Modern Philosophy. A study of the development of philosophy from the Renaissance to the present day. The net results of this evolution will be summed up in an account of the philosophical thought and problems of the present. *Second semester; M., W., F., at* 11. Professor MCGILVARY.

41. Ethics: Introductory Course. *Second semester; M., W., F., at* 8. Professor SHARP.

42. Social and Political Ethics. A general study of moral rights, of the rights of personal liberty, freedom of contract, national independence, suffrage, and property. *First semester; Tu., Th., at* 12. Course 41 is not required as a preliminary. Professor SHARP.

51. Aesthetics. A general survey of aesthetical appreciation, with practical applications to art. An introductory course requiring no previous acquaintance with aesthetics. *First semester; Tu., Th., at* 10. Professor JASTROW.

For Undergraduates and Graduates

2. Advanced Analytic Psychology. *Second semester; twice a week; hours to be arranged.* Professor SHARP.

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3. Experimental Psychology, Part I. (a) Lectures and demonstrations. *First semester; Tu., Th., at* 11; (b) Laboratory practice parallel with lectures. *About three hours weekly at hours to be arranged.* (a) and (b) together count as three unit-hours. While this course is continued as course 4, the lectures and practical exercises are so arranged that either part may be taken in advance of the other. Part I deals with sensation, perception, movement, reactions and the simpler functions of the mental life. It is the purpose of this, as of the following course, to familiarize the student with the methods of testing, and with the analysis of mental processes, and to furnish him with practical facility in their application. Professor JASTROW.
4. Experimental Psychology, Part II. (a) Lectures and demonstrations. *Second semester; Tu,. Th., at* 11; (b) Laboratory practice with lectures. *About three hours weekly at hours to be arranged.* (a) and (b) together count as three unit-hours. While this course is the direct continuation of course 3, the lectures and practical exercises are so arranged that either part may be taken in advance of the other. Part II deals with memory, association, attention, imagination, reasoning, the emotions and the more complex manifestations of the mental life. For course 4, course 1 or its equivalent is required. Professor JASTROW.
5. Research in Psychology. *Throughout the year; hours to be arranged.* Professor JASTROW.
6. Comparative Psychology. Lectures and assigned readings on animal psychology and mental development in man. *Second semester; M., T., W., at* 3. Professor JASTROW.
7. Abnormal Psychology. Lectures and assigned readings covering the main forms of unusual and abnormal mental phenomena. *Second semester; Tu., Th., at* 10. (Omitted in 1908-09.) Professor JASTROW.
9. The Psychology of Language. A survey of the language-processes and their mode of action as illustrated by the study of language in its growth, in disease, among primitive peoples, in history, and as a logical product. *First semester; M., W., at* 3. (Omitted in 1908-09.) Professor JASTROW.

36. The British Philosophers of the Eighteenth Century. Locke, Berkeley, and Hume. *First semester; M., W., F., at* 10. Professor MCGILVARY.

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37. Kant. *The Critique of Pure Reason. Second semester; M., W., F., at* 10. Professor McGILVARY.

44. History of Morality. An outline history of moral practice in primitive, ancient, and medieval times. Among the ancient historical nations studied are the Egyptians, Babylonians, Hindus, Hebrews, Greeks, and Romans. The relation of primitive Christian morality to previous moral types will be considered; and finally modern occidental morality will be viewed as a result of the joint action of many influences. *First semester; M., W., F., at* 10. Professor McGILVARY.

45. The Evolution of Morality. *First semester; twice a week.* Professor SHARP.

46. Contemporary Moralists. *Second semester; twice a week.* Professor SHARP.

Primarily for Graduates

10. Psychological Seminary. *Throughout the year; alternate weeks.* Professor JASTROW.

13. Advanced Logic. *Two hours a week throughout the year.* Assistant Professor BODE.

40. Metaphysical Seminary. *Throughout the year; Tu., 4 to 6.* Professor McGILVARY.

47. Ethical Seminary. *Throughout the year; alternate weeks; W., 4 to 6.* Professor SHARP.

EDUCATION

PROFESSORS O'SHEA, ELLIOTT; ASSISTANT PROFESSORS TRESSLER, DEARBORN; MR. SCOTT AND MR. WEBER.

The chief aim of the work in this department is to treat Education, in its history, foundations, and practice in the spirit of contemporary thought. To this end, groups of courses are offered in each of the following: (1) The historical evolution of educational ideals, institutions, and practices, as a basis for the intelligent interpretation of modern American education; (2) The more important educational movements of the present day; (3) The principles of mental development in the child

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and the race, with particular reference to educational aims and processes; (4) Educational psychology as a basis for the principles of teaching, and of educational methods and practice; (5) Principles of education viewed in the light of contemporary biological, sociological, and psychological thought; (6) The organization, administration, and methods of supervision of public education; (7) Seminary and research courses in each of the main divisions of education, the purpose of which is to investigate and discuss in a critical manner unsolved problems in the several fields covered; (8) The observation of teaching under expert supervision.

Certain of these courses are designed especially for those students who are specializing in other departments, and who can complete only elementary courses in Education. These courses are commended to students who are interested in questions pertaining to human nature and society, even though they do not intend to follow teaching as a profession. The remaining courses are designed for advanced students, including those who are candidates for the degree of Bachelor of Philosophy. For those who desire to devote special attention to the study of Education in preparation for positions in normal and training schools and colleges, the department of Education is now equipped to meet their needs in both a theoretical and a practical way. Graduates of this or other universities who intend to become superintendents or supervisors of education, but who have not been able to make adequate preparation therefor, can profitably spend a year in graduate study in this department.

The department is provided with professional and text-book libraries kept complete to date; it has for its use a well equipped psychological laboratory for demonstrational and experimental purposes; it has begun the establishment of an educational museum; and the work of the various courses is made concrete and definite by the use of lantern slides, charts, and other illustrative aids.

The Regents of the University have entered recently into an agreement with the Board of Education of the city of Madison, whereby students in the University pursuing courses in Education, and preparing to teach, are enabled hereafter to observe, under the most favorable conditions, expert teaching in the Madison High School.

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Major in Education

Undergraduate students selecting Education as a major subject will be required to obtain credit in approved courses amounting to twenty-two hours, inclusive of credit for thesis.

Primarily for Undergraduates

1a. History of Education. A study of the origins and evolution of the more significant of the present-day educational ideals, institutions and practices. Special attention during 1908-09 to the historical development of the aims, curricula, organization, etc., of secondary educational institutions. *Two or three hours credit:* the regular class work, including lectures, discussions and text-book readings, counts for two hours; the parallel readings and special topics for one additional hour. *First semester; M., W., F., at* 9. Professor ELLIOTT.

1b. History of Education in the Nineteenth Century. A study of the development of educational standards and institutions during the past century, with special emphasis upon American education. *Two or three hours credit:* the regular class work, including lectures, discussions and text-book readings, counts for two hours; the parallel readings and special topics, for one additional hour. *Second semester; M., W., F., at* 9. Professor ELLIOTT.

In the above courses the history of education is regarded from the point of view of its place in the *professional* education of teachers, and of its primary purpose of affording to prospective teachers a basis for the interpretation and appreciation of the essential features of modern elementary and secondary education. While courses 1a and 1b represent a continuity in presentation, each semester's work is considered a unit in itself, and consequently, either course may be elected independently of the other.

11a. Mental Development. The work will cover (1) the general characteristics of development; (2) the theory of recapitulation in development; (3) motor development; (4) mental economy and hygiene in development. The work is made concrete so far as possible by the use of models, charts, etc., and by observation of the pupils in the high and elementary schools of Madison. The educational bearings of the principles discussed will be indicated. *Two or three*

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hours credit: the regular class work, including lectures, discussions and text-book readings, counts for two hours; the parallel readings and special topics, for one additional hour. *First semester; M., W., F., at* 10. Professor O'SHEA.

11b. Mental Development. This is a continuation of course 11a, but it may be elected separately. The work will cover (1) intellectual development; (2) emotional development; (3) adolescence. *Two or three hours credit:* the regular class work, including lectures, discussions and text-book readings, counts for two hours; the parallel readings and special topics, for one additional hour. Open to graduate students for three hours credit only. *Second semester; M., W., F., at* 11. Professor O'SHEA.

For Undergraduates and Graduates

4a. Administration and Supervision of Education. A study of the forms of administrative and supervisory control of American public education. Special detailed presentation of the organization and problems of public education in cities. *Two or three hours credit:* the regular class work, including lectures, discussions and collateral readings, counts for two hours; the preparation of reports on special topics, for one additional hour. *First semester; Tu., Th., S., at* 9. Professor ELLIOTT.

4b. Administration and Supervision of Education. A study of the development, social significance, modes of organization and supervision of the more important types of supplementary agencies for public education. The problems arising from compulsory education and child labor laws; evening and vocational schools; schools for backward, defective and delinquent children; vacation schools and playgrounds; evening lecture systems and other forms of supplemental education for adults. Lectures, reports, and class discussions of selected topics. *Second semester; T., Th., at* 9. Professor ELLIOTT.

These two courses, 4a and 4b, have been designed particularly for those preparing for the duties of school superintendents and principals. While the two courses represent a continuity in presentation, each semester's work is considered a unit in itself, and consequently, either course may be elected independently of the other.

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5. Comparative Educational Administration. A comparative study of the educational systems of Germany, France, and England, with special emphasis upon those features possessing significance for American education. Lectures, class discussions and special reports. *Two hours credit. Second semester; S.*, 9 *to* 11. Professor ELLIOTT.

13. Principles of Education. Treated with special reference to the high school. The first half of the course is devoted to a study of the foundations of educational theory viewed in the light of contemporary thought. The second half is devoted to a consideration of practical problems of curriculum, methods, and management. The work is made concrete by observation of pupils in the high and elementary schools of Madison. *Two or three hours credit:* the regular class work, including lectures, discussions, and text-book readings, counts for two hours; the parallel readings and special topics for one additional hour. *First semester; M., W., F., at* 11. *Repeated the second semester at* 10. Professor O'SHEA.

15. Contemporary Educational Movements. Contemporary movements at home and abroad affecting courses of study, the general character and method of teaching, and school organization and management. *First semester; M., W., at* 12. Professor O'SHEA and Professor ELLIOTT.

16. Educational Classics. With reference particularly to present problems respecting the nature and training of childhood and youth. Readings in Montaigne, Locke, Rousseau, Mill, and Spencer. *Two hours credit. Second semester; Th.*, 4 *to* 6. Professor O'SHEA.

32. Seminary in Administration and Supervision of Education. A research course for advanced students who desire to investigate some of the larger problems in the sphere of the administration and supervision of education, especially in cities. Students presenting theses in the administrative and supervisory phases of education are required to register for this course. *Throughout the year; on alternate Fridays*, 4 *to* 6. Professor ELLIOTT.

33. Supervision of Instruction. This course has been arranged with a view to making a careful presentation of those aspects of public-school education involved in the distinctly professional work of superintendents and principals of

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schools. The evolution and interpretation of the public school curriculum. The principles, methods, and problems of the supervision of instruction. Special attention to those phases of supervision possessing importance for elementary and secondary schools of smaller cities. The work of this course will include, in addition to lectures, reports and class discussions of selected topics, systematic study of the actual conditions under which supervision must be carried on. For this purpose the public schools of the city of Madison will be used. *Second semester; Tu., Th., at* 10. Professor ELLIOTT.

41. Educational Psychology. (a) Lectures and demonstrations. *Tu., Th., at* 11. (b) Laboratory practice parallel with lectures. *One laboratory period of two hours a week at hours to be arranged.* Lectures on the psychology of the learning processes, and the application of the principles of phychology to teaching with a brief survey of the subjects of individual psychology and mental hygiene. The lectures or the laboratory course may be elected separately with the permission of the instructor. An introductory course in psychology is prerequisite for this course. *First semester; and repeated in the second semester. Two or three hours credit.* Professor DEARBORN.

42. Research in Education. Students who wish to prepare theses on subjects dealing with educational psychology are expected to register for this course during the last semester of the junior year or the first semester of the senior year. *Throughout the year; hours to be arranged. Two or three hours credit.* Professor DEARBORN.

43. Seminary in Educational Psychology. Assigned topics and reports on recent experimental studies and researches in educational psychology. *Throughout the year; on alternate Wednesdays,* 4 *to* 6. Professor DEARBORN.

44. Advanced Educational Psychology. One lecture or laboratory hour a week with assigned readings on selected topics. Subject for the first semester of 1908-09: The Psychology of Reading; for the second semester: Mental Deficiency. *May be elected for either semester; hours to be arranged. One hour credit.* Professor DEARBORN.

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Primarily for Graduates

14. Genetic Psychology. The psychology of development in respect to some of the principal types of educational work. Designed for advanced students in psychology and education. For the year 1908-09 the subject considered will be social development and education. *Throughout the year; W.*, 7 *to* 9 P. M. *Two hours credit each semester.* Professor O'SHEA.

20. Seminary in Education. The investigation and discussion of current educational problems. Each member is required to undertake a piece of research, and report upon it during the year. Open to those only who have done at least one year's work in Education. *Throughout the year; alternate Thursdays*, 7 *to* 9 P. M. Professor O'SHEA.

University Teacher's Certificate

For the courses in Education to be taken in fulfillment of the requirements for the University Teachers' Certificate, see Index under Teachers' Certificate.

HISTORY

PROFESSORS DENNIS, MUNRO, TURNER; ASSOCIATE PROFESSORS FISH, SELLERY; ASSISTANT PROFESSORS COFFIN, PHILLIPS; MR. PATTERSON, MR. SCHOLZ, MR. AMBLER, MR. CHASE, MR. DILWORTH, MR. DUNCALF, MISS FORD, MR. KENNEY, MR. KREY, MR. MCMAHON, MR. MAURER, MISS NEWELL, AND MR. NORWOOD.

The courses in history are divided into three groups, as follows:

A. Introductory courses 1 to 10 are primarily for undergraduates. They cannot be counted towards advanced degrees, and graduates are required to have completed an equivalent of sixteen semester hours of these studies as a preparation for graduate work for a degree. It is recommended that students shall not cover all of the introductory courses to the neglect of advanced work. If history is chosen as one of the required subjects (see Index under Degrees), six unit hours must be taken in one or more complete courses.

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B. Advanced courses 11 to 49 are designed to continue the work begun in the preliminary courses in the direction of greater specialization. These courses are open to undergraduates and graduates who have taken the necessary preliminary work. Students who intend to teach history are referred to the statement of course 50.

C. Courses 51 to 66 are not open to undergraduates.

Instructors and graduate students in history meet once each month to discuss some historical topic of general interest, and for informal conference.

History Major

The requirements for an undergraduate major in history, in addition to the thesis, are twenty-six semester hours as a minimum, selected as follows:

I. One or more introductory courses in both European and American history.

II. Advanced courses to the amount of at least ten unit hours.

For Undergraduates

COURSES OPEN TO FRESHMEN

10. Ancient History. A general survey of the history of the ancient world, including the oriental nations, Greece and Rome. Text-book, lectures, collateral reading, and quizzes. *Throughout the year; One lecture and one quiz section each week. Lectures, Th., at* 11 *and* 12. Mr. SCHOLZ.

For Greek and Roman Life, see Latin 12.

1. Medieval History. A general survey of the history of Europe from the barbarian invasions to the close of the fifteenth century. Advanced students will be given special quiz sections. Lectures, quizzes, collateral reading, and topics. *Throughout the year; M., W., F., at* 11. Professor MUNRO, Associate Professor SELLERY, and assistants.

5. English History. An outline of political and constitutional history will serve as a framework for the study of the economic, social, and intellectual development of the nation. In addition to the lectures and text-book, collateral reading and reports will be required. *Throughout the year; Tu., Th., at* 10, *and a third hour in sections for quiz work.* Professor DENNIS and assistants.

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COURSES NOT OPEN TO FRESHMEN

2. Modern European History. A general survey extending from the close of the fifteenth century to the present day. Lectures, collateral readings and a topic. The complete course is given each semester. *First semester; M., W., F., at* 8. Associate Professor SELLERY. *Second semester; M., W., F., at* 12. Assistant Professor COFFIN.

6. English History. A general review extending to the end of the nineteenth century, useful for students of English literature, and for those who expect to teach history. Lectures, topics, and collateral readings. Students are not permitted to elect both courses 5 and 6.

The complete course is given each semester. *First semester; M., W., F., at* 12. *Second semester; M., W., F., at* 8. Mr. PATTERSON.

4. History of the United States. A general survey from the revolutionary era to the present, with emphasis upon political history. Lectures, text-book, collateral reading and topics. This course, or an equivalent, must precede all advanced courses in American history.

To the presidency of Jackson, *first semester;* from the presidency of Jackson to the present, *second semester; M., W., F., at* 11. Associate Professor FISH.

For Undergraduates and Graduates

ANCIENT AND MEDIEVAL HISTORY

25. Spread of Greek Civilization. A study of the causes and forces making for the spread of Greek civilization from the earliest times to the early Roman Empire. *Second semester; M., W., at* 12. (To be given first semester in 1908-09.) Mr. SCHOLZ.

26. Later Roman Empire. A study of the organization and government of the Empire in the third and fourth centuries, with special emphasis on the municipality and economic conditions. *Second semester; M., W., at* 12. Mr. SCHOLZ.

29. Greek and Roman Institutions. (a) To the end of the Roman Republic. *First semester;* (b) Roman Imperial and Municipal Institutions. *Second semester; M., W., at* 12. (Omitted in 1908-09.) Mr. SCHOLZ.

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31. Medieval Civilization. Designed to supplement course 1 by a more special study of the intellectual life of the feudal period and of the organization of society. *First semester; Tu., Th., at* 10. (Omitted in 1908-09.) Professor MUNRO.

32. The Crusades. Designed to supplement course 1 by a more extended study of the period from 1095 to 1291, with special reference to the causes, events and influence of the Crusades. *Second semester; Tu., Th., at* 10. Professor MUNRO.

41a. Constitutional History of England. A study of the growth of English institutions to the close of the Middle Ages. Open to juniors and seniors who have had course 5 or 6. *First semester; Tu., Th., at* 12. Mr. PATTERSON.

34. The Later Middle Ages. The political, social and religious life of western Europe in the fourteenth and fifteenth centuries, with emphasis upon the careers of such prominent men and women as Nogaret, Rienzi, St. Catherine, and Joan of Arc. *First semester; Tu., Th., at* 9. Associate Professor SELLERY.

35. The Renaissance in Italy. A consideration of the principal manifestations of Italian genius in the fourteenth, fifteenth, and sixteenth centuries. The importance of the medieval background and the exaggerated influence commonly ascribed to revived antiquity. *Second semester; Tu., Th., at* 9. Associate Professor SELLERY.

46. Introductory Seminary in European History. The course is designed to give some familiarity with medieval conditions, with medieval Latin, and with the elements of historical method. The work consists in the translation and study of a medieval chronicle. In 1907-08 the subject was Richer; in 1908-09 it will be Otto of Freising. Open to graduate students and qualified seniors. *Throughout the year; Tu.,* 4 *to* 6. Associate Professor SELLERY.

48a. Europe and Asia. A general survey of the historical relations of eastern and western peoples to about 1500, to serve as a basis for courses in contemporary world politics or for more detailed study of special phases of the relations of Asia to Europe. Graduate students can take this course in connection with course 66. Open to graduates and to undergraduates with sufficient preparation. *First semester; Tu., Th., at* 3. (Omitted in 1908-09.) Professor DENNIS.

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MODERN HISTORY

40. German Revolt of the Sixteenth Century. After a presentation of the social, economic, and intellectual antecedents of the Protestant Revolt, the career of Luther and the progress of the movement to 1555 will be traced in detail. *Second semester; M., F., at* 3. (Omitted in 1908-09.) Mr. PATTERSON.

41b. Constitutional History of England. A study of the growth of English institutions since the Middle Ages. A continuation of course 41a to the present. Open to juniors and seniors who have had course 5 or 6. *Second semester; Tu., Th., at* 12. Assistant Professor COFFIN.

49. Europe and America. A review of the European background of American history and of the mutual influence of European and American political and economic development. Among the topics treated will be:—trade routes and geographical discovery, the rise of European national states and their rivalries, the development of English institutions, the motives for colonization and emigration at various periods, the mercantile system, foreign aspects of the American Revolution, the French Revolution, Napoleon Bonaparte, the Holy Alliance, modern liberal movements, foreign aspects of the Civil War, modern economic tendencies, and contemporary world politics. This course, which may be elected by semesters, is open to students who have previously studied European history. *Throughout the year, Tu., Th., at* 11. Professor DENNIS.

42. England under the Tudors and Stuarts. A course dealing with constitutional and religious struggles in the sixteenth and seventeenth centuries, economic and social changes, international relations, the development of sea-power, and the founding of the British Empire. *Throughout the year; Tu., Th., at* 11. (Omitted in 1908-09.) Professor DENNIS.

43. The British Empire since 1688. A course dealing with the development of modern English institutions, foreign affairs, the international struggle for colonial and commercial supremacy, and the evolution of imperial politics. *Throughout the year; Tu., Th., at* 11. (Omitted in 1908-09.) Professor DENNIS.

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36. The Age of Louis XIV. The development of territorial divisions and of political ideas, 1648-1721. Course 2 or its equivalent is a prerequisite. Alternates with course 37. *First semester; Tu., Th., at* 10. (Omitted in 1908-09.) Assistant Professor COFFIN.

37. The Old Régime. An examination of the institutions of the eighteenth century and of the causes of the French Revolution. Course 2 or its equivalent is a prerequisite. Alternates with course 36. *First semester; Tu., Th., at* 12. Assistant Professor COFFIN.

44. The Development of Modern Russia, from the Muscovite leadership of the fifteenth century to the end of the nineteenth century. A study of institutions and of foreign relations. Course 2 or its equivalent is a prerequisite. *Second semester; Tu., Th., at* 12 *and S., at an hour to be arranged.* Assistant Professor COFFIN.

45. The Development of Prussian Leadership in Germany, 1640-1871. A study of modern Prussian institutions and of the relations of Prussia with the other German states. Course 2 or its equivalent is a prerequisite. *First semester; Tu., Th., at* 12 *and S., at an hour to be arranged.* Assistant Professor COFFIN.

38. The French Revolution and the Napoleonic Empire, 1789-1815. A general study of the development of institutions and of international relations. Course 2 or its equivalent a prerequisite. May be elected by semesters: *first semester*, 1789-99; *second semester*, 1799-1815. Alternates with course 39. *Throughout the year; M., W., F., at* 10. Assistant Professor COFFIN.

39. The Nineteenth Century, 1815-1900. A general study of the development of institutions and of international relations. Course 2 or its equivalent is a prerequisite. May be elected by semesters: *first semester*, 1815-52; *second semester*, 1852-1900. Alternates with course 38. (Omitted in 1908-09.) *Throughout the year; M., W., F., at* 10. Assistant Professor COFFIN.

48b. Europe and Asia. A continuation of course 48a, dealing in similar fashion with the relations of Europe and Asia since about 1500. *Second semester; Tu., Th., at* 3. (Omitted in 1908-09.) Professor DENNIS.

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AMERICAN HISTORY

16. Social, Economic, and Institutional History of the American Colonies. Attention is given to the European conditions, to the motives and methods of colonization, and to the development of systems of industry, society, and government through the adaptation of European institutions to the American environment. *Throughout the year; M., W., at* 10. Assistant Professor PHILLIPS.

17. The American Revolution. In this course a general view of the British imperial system and of American conditions is followed by a treatment of the constitutional issue, the conflict of ideas and policies, and the process of political revolt and social upheaval. The course is concluded by a study of the problems and work of remodelling the commonwealth upon a statehood basis, and of establishing and operating the confederation. *Throughout the year; Tu., Th., at* 12. Assistant Professor PHILLIPS.

13. History of New England. A study of the transfer of population from Europe to the New England region, of the forces, social, economic, and political, that acted upon it there, and its expansion westward across the United States and Canada. Special stress will be laid upon the development and the social conditions of the New England towns, the process of New England expansion, and the religious and intellectual development of the people. *Second semester; M., W., F., at* 10. (Omitted in 1908-09.) Associate Professor FISH.

12. History of the South. An economic, social and political study. The plantation system, with its dependence upon staple crops, unfree labor, free trade and local autonomy, is taken as a key to the development and policy of the South. The first semester's work, extending to about 1820, deals chiefly with the internal development of the South; the second semester's work deals chiefly with the sectional issues of state rights and slavery. The course may be elected by semesters. *Throughout the year; M., W., F., at* 11. Assistant Professor PHILLIPS.

11a. The History of the West to 1840. Particular attention is paid to the conditions of westward migration and to the economic, political, and social aspects of the occupation of

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the various physiographic provinces of the United States, together with the results upon national development. Lectures, collateral reading, and topics. *First semester; M., W., F., at* 12. Professor TURNER.

11b. History of the West, 1840 to the present. See description of course 11a. *First semester; M., W., F., at* 12. (Omitted in 1908-09.) Professor TURNER.

18. Civil War and Reconstruction. A general study of the history of the United States, 1860 to 1876. *Second semester; M., W., F., at* 12. (Omitted in 1908-09.) Associate Professor FISH.

15. Diplomatic History of the United States. A study of the actual negotiations between the United States and other countries, and of the progress of international law so far as it has affected or been affected by the United States. *Throughout the year; Tu., Th., at* 10. Associate Professor FISH.

19. The Materials of American History. The purpose of this course is to introduce the student to the principal sources of American historical data. The value of newspaper files, government documents, and the Draper collection of MSS. will be discussed. *Second semester; M., W., at* 3. Assistant Professor PHILLIPS.

21. The Literature of American History. The purpose of this course is to show the progress of historical method, and of historical knowledge in America by a comparative study of the classics of American historiography. *First semester; W., at* 2. (Omitted in 1908-09.) Associate Professor FISH.

20. Introductory Seminary in American History. Topics in the history of Reconstruction, dealing particularly with conditions in the South. *Throughout the year; S.,* 10 *to* 12. (Omitted in 1908-09.) Associate Professor FISH.

50. Methods of History Teaching, with special reference to the work of the high school. Text book, lectures, class discussion, and observation. Open to seniors whose major is in history, and to others only by special permission of the instructor. Students whose majors lie in other fields may be recommended by the department as assistant teachers of history in a high school, provided they have successfully completed at least sixteen semester hours in history, of

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which at least four semester hours must be in advanced courses. *Second semester; M., W., at* 9. Associate Professor SELLERY.

For Graduates

51. Historical Bibliography. An account of the present state of materials for historical research and an examination of bibliographical tools essential to the special study of history. *First semester; W., at* 10. (Omitted in 1908-09.) Professor MUNRO.

52. Historical Criticism. An introductory survey of the principal problems of historical method. *Second semester; W., at* 10. (Omitted in 1908-09.) Professor MUNRO.

53. Palaeography and Diplomatics. (a) Elements of palaeography, with practical exercises in the reading of manuscript facsimiles, (b) elementary exercises in diplomatics. The first part of the course is arranged for the benefit of advanced students of language as well as for students of history. *Second semester; F.,* 9 *to* 11. Professor MUNRO.

54. Modern Historians and their Methods. Lectures on English, French, German, Italian, and American historians of the latter part of the eighteenth and of the nineteenth century. The purpose is to discuss their writings and to illustrate the problems and methods of work in various fields of European history. *Second semester; W., at* 10. Professor MUNRO.

56. Seminary in Medieval History. In 1907-08: a critical study of the first crusade. In 1908-09: the second crusade and the Latin Kingdom of Jerusalem. A knowledge of three foreign languages is required. *Second semester; Th.,* 4 *to* 6. Professor MUNRO.

57. Seminary in Modern European History. Topic for 1908-09: Napoleon I and the Kingdom of Italy. *First semester; S.,* 10 *to* 12. Assistant Professor COFFIN.

66. Oriental Seminary. This course is intended to supplement course 48, and to give opportunity to graduate students to investigate, by means of special research topics, various aspects of the relations of Europe and Asia. The special field of study for 1908-09 will be British India. *Hours to be arranged.* Professor DENNIS.

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58. Seminary in American History. The administration of Van Buren. *First semester; M.*, 2:30 *to* 4; *W.*, 4 *to* 6. Professor TURNER.

POLITICAL ECONOMY

PROFESSORS BURCHELL, COMMONS, ELY, MEYER, ROSS, SCOTT; ASSOCIATE PROFESSORS ADAMS, TAYLOR; ASSISTANT PROFESSORS GILMAN, LORENZ, R. B. SCOTT; DR. PRICE, MR. ANDREWS, MR. CAMPBELL, MR. COULTER, MR. HESS, MISS SUMNER, AND MR. HAWES.

The purpose of the department is to afford means for systematic and thorough study in economics and social science. The courses are graded and arranged so as to meet the wants of students in the various stages of their progress, beginning with elementary and proceeding to the most advanced work. They are also designed to meet the needs of different classes of students; as, for instance, those who intend to enter the public service, business, the professions of law, journalism, the ministry, charity work, or teaching, and those who wish to supplement their legal, theological, or other professional studies with courses in economics or social science. Capable students are encouraged to undertake original investigations, and assistance is given them in the prosecution of such work through seminaries and the personal guidance of instructors. Special funds or equivalent arrangements have been secured for the investigation of the American labor movement, taxation in Wisconsin, railway transportation, and the manufacturing industries of Wisconsin. A means for the publication of the results of investigations of merit and importance is provided in the University Bulletin.

Among the special facilities which Madison affords to students in political economy mention should be made of the various libraries. The library of the University of Wisconsin is especially rich in economic works, while the Wisconsin Historical Library has valuable collections, helpful in research and investigation. The materials for the study of history described in connection with the work in the department of History are especially helpful to students working in the field of political economy at a time when political economy is giving so much attention to

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historical investigation. The University library has complete sets of the most important economic and statistical journals. In the field of Labor History and Labor Legislation the library facilities are exceptional for research. The Historical Library is the custodian of the extensive collection of labor and employers' papers, convention proceedings, agreements, etc., secured through the American Bureau of Industrial Research. Transcripts of unique manuscript material are constantly being added to this collection. Mr. William English Walling of Chicago has presented important collections of books, papers, and pamphlets dealing with modern European socialism and social problems. Madison is also the headquarters of the American Association for Labor Legislation, the American branch of the International Association for Labor Legislation whose seat is Basle, Switzerland. Special attention is called to the Schlueter Collection of books, papers and manuscripts, recently acquired of Mr. Herman Schlueter of New York City. It is one of the richest collections in existence relating to the early history of socialistic movements in Germany and certain phases of similar movements in the United States and other countries. It contains documents that cannot be found even in the archives of the social democratic party in Germany; and is indispensable for any exhaustive scientific work in this field. In 1905, Mr. James J. Hill of St. Paul presented $5,000 to be expended for the development of the library on Transportation, and since then has made an additional gift.

The studies offered by the department are elective in all the courses of the University. The graduate work of the department may lead to the master's degree in not less than one year, and to the doctor's degree in not less than three years.

The work of this department has the following distinct but related aims:

1. To provide instruction in economics and sociology for undergraduates in all the courses of the University.
2. To provide advanced and graduate work in the studies falling within its field.
3. To assist and encourage the development of these studies.
4. With the co-operation of other departments, to provide special training courses for various practical pursuits.
5. To supplement the work of the College of Law.

Attention is here called to the fact that graduates who are

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pursuing the law course may prepare to take their master's degree at the same time with the degree in law by completing the equivalent of two full studies during one year's work. Graduates of the College of Law are encouraged to devote an additional year to broadening out their training in economics, politics, and jurisprudence.

Especial attention is called to the large number of related courses in philosophy and ethics, and also to the considerable number of journalistic courses in the department of English.

POLITICAL ECONOMY AS AN UNDERGRADUATE MAJOR.—The requirements for an undergraduate major, in addition to the thesis, are twenty-one unit hours as a minimum, selected in part from the advanced courses.

POLITICAL ECONOMY AS A GRADUATE MAJOR.—Candidates for the degree of Doctor of Philosophy in this department are required to present in their principal subject the equivalent of at least two full graduate courses during two years; in their first subordinate the equivalent of at least one such course during two years; and in their second subordinate the equivalent of at least one such course during one year.

All such candidates will be expected to be familiar with the history of economic thought, the elements of statistics, and the principles of political economy as presented in advanced modern treatises.

Each candidate must have also made an intensive study of at least one of the following special fields: economic theory and institutions; economic history; sociology; labor; public finance; money, banking, and private finance; transportation. In the special field or fields selected, the candidate will be expected to exhibit not only thorough knowledge of the literature, methods of study, and social bearings of the subjects included, but also ability to prosecute research.

Candidates for the master's degree must present in their principal subject the equivalent of at least two full graduate courses during one year, and in their subordinate subject the equivalent of at least one such course.

POLITICAL ECONOMY AS A GRADUATE MINOR.—For a minor, candidates whose major falls in another department may present either the general subjects required of all candidates with a major in economics, or any one of the special groups mentioned above.

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Candidates for the degree of Doctor of Philosophy may select their major and one of their minors in this department.

Primarily for Undergraduates

1. The Elements of Economic Science. A general survey based upon the study and discussion of Ely's *Outlines of Economics*, supplemented by lectures, assigned reading, and exercises. Required of sophomores in the Course in Commerce and of all students beginning the subject of economics. *Repeated each semester; M., W., F., at* 8, 9, 10, *and* 11; *and Tu., Th., S., at* 9. Associate Professor TAYLOR, Dr. PRICE, Mr. COULTER, Mr. HANCOCK, and Mr. HESS.
2. Elementary Sociology. Lectures with lantern slides. This course is copiously illustrated in order to give a graphic idea of the variety of social forms, and to show the actual evolution in each of the great departments of social life. For those who wish a general view of the subject as well as for those who expect to take the more advanced courses in sociology. *Attendance only. One unit-hour. First semester; M., W., F., at* 10. Professor Ross.
3. Elements of Public Finance. An introductory study of the general principles of public expenditure, public revenue, public indebtedness, and financial administration. *First semester; M., W., F., at* 9. Dr. PRICE.
5. The Elements of Money and Banking. An introductory course, based on Scott's *Money and Banking*. Repeated each semester. In the first semester the course will be adapted to the needs of those who do not expect to continue the subject in advanced courses. In the second semester the needs of those who expect to specialize in banking and finance will be chiefly consulted. *M., W., F., at* 9. *Also Tu., Th., S., at* 9. Professor SCOTT and Mr. HESS.
6. Introduction to Anthropology. This course deals with general questions which precede the study of race, physical characteristics and culture. Scope, methods and uses of Anthropology; material and authorities. Man's place among the animals; evolution; monogenesis vs. polygenesis; antiquity of man. Ethnic divisions; a brief survey of the races of the five continents. *First semester; M., W., F., at* 10. Mr. HAWES.

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7a. Economic Geography. A general survey of the history and present status of industry and commerce in the principal countries of the world excepting the United States. *Second semester; M., W., F., at* 8 *and* 9. Associate Professor TAYLOR.

7b. Economic Geography of the United States. After a brief survey of the development of industry and the expansion of commerce, a special study is made of the production and distribution of the principal articles which enter into American commerce. *First semester; M., W., F., at* 8. Associate Professor TAYLOR.

8. Business Administration. This course is designed to give such training in business operations as will fit young men for all-round usefulness, develop their business tendencies, and prepare them to pursue business with foresight and understanding. May be taken as a two-hour course for three years or as a three-hour course for two years. Assistant Professor GILMAN, and assistants.

8a. For Sophomores. *Throughout the year. Lectures and laboratory practice. M., at* 2; *Tu., Th.,* 2 *to* 4. *Conference hours in sections to be arranged.* Assistant Professor GILMAN and assistants.

8b. For Juniors. *Throughout the year. Lectures and laboratory practice. First semester; Tu., Th.,* 4 *to* 6. *Second semester; Tu., Th., at* 4. Assistant Professor GILMAN and assistants.

8c. For Seniors. *Throughout the year. Lectures and laboratory practice. M., W.,* 3 *to* 6.

9. Commercial Law. The law of contracts, commercial paper, agency, partnership, corporations, sales, public service companies, real estate, probate, and insurance treated with reference to the legal rights and liabilities arising in the conduct of business. *Throughout the year; M., W., F., at* 2. Assistant Professor GILMAN.

10. Physical Anthropology or Somatology. This course is designed to train field-workers and students in accurate understanding of physical data and to establish principles for the study of physical efficiency. Anthropometry; how measurements are made and why; on the living and on disinterred remains; the relative value of indices of measurement. Other criteria of classification. Differences due

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to sex; the influences of environment, selection and civilization. Use will be made of the Anatomical Museum. *Second semester; M., W., F., at* 10. Mr. HAWES.

18. Senior Seminaries for Thesis Students. Professor BURGESS, COMMONS, and SCOTT, Associate Professors ADAMS, TAYLOR, Assistant Professor LORENZ, and Dr. PRICE.

For Undergraduates and Graduates

20. Industrial Evolution and Its Problems. A general survey of industrial development followed by an examination of special problems, such as custom and competition, monopolies and trusts, concentration of wealth, municipal ownership, the inheritance of property, etc. *Second semester; M., W., F., at* 11. Dr. PRICE.

21. History of Economic Thought. The principal topics will be the following: The history of economic thought in classical antiquity; its subsequent development to the time of the mercantilists; the rise and growth of economics as a distinct branch of social science with a brief discussion of existing schools of economic thought. *First semester; Tu., Th., at* 10. Professor ELY and Dr. PRICE.

22. Modern Socialism. A study of the socialist movement during the nineteenth century, and an examination of the theories of those writers who are usually called socialists. *First semester; Tu., Th., at* 9. (Omitted in 1908-09.) Assistant Professor LORENZ.

23. Labor Problems. The characteristic features of American industry, immigration, strikes, trade unions, employers' associations, arbitration, industrial efficiency, restrictions on output, etc. *First semester; M., W., F., at* 9. Professor COMMONS.

23a. Labor Legislation. The labor laws and decisions of the United States and foreign countries, the practical working of important statutes, studies of the reports of the International Association for Labor Legislation. *Second semester; M., W., F., at* 9. Professor COMMONS.

24. Problems in Taxation. Comprehends the more concrete problems of the day: mortgage, railroad, insurance, and double taxation, the personal property and inheritance taxes, etc. *Second semester; Tu., Th., at* 11. (Omitted in 1908-09.) Associate Professor ADAMS.

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26. Agricultural Economics. This course consists of a study of the economic principles which underlie farm management, estate management, and agrarian legislation. Open to students who have had course 1. *Second semester; two hours per week.* Associate Professor TAYLOR.

27. Historical and Comparative Agriculture. This course consists of a sketch of the development of agriculture in England and America, followed by a special study of the recent history and the present status of agriculture in the United States, with an attempt to find the explanation of historical changes and geographical differences in methods of farm and estate management. Open to students who have had course 26. *First semester; two hours per week.* Associate Professor TAYLOR.

28. Research Course in Agricultural Economics. In 1908-09 this course will be devoted to the problems of land ownership and tenancy in the United States. Open to students who have had courses 26 and 27. *Two unit-hours.* Associate Professor TAYLOR.

29. Manufacturing Industries. A study of the history and social relations of typical industries, and of the fundamental principles and methods of procedure involved in their organization and management, including factory operations, purchasing, cost of production, depreciation, appraisals, advertising, selling, credits, collections, correspondence, systems, etc. Must be preceded by courses 7a and 7b. This course is arranged in three groups: (a) a study of the whole general subject; (b) special problems in Management; (c) special problems in Distribution. Groups (b) and (c) are open only to graduates and qualified seniors and must be preceded by Group (a). Group (a): *First semester; five lectures a week, M., Tu., W., Th., F., at* 10; *two unit-hours.* With required reading and conference hours, one or two unit-hours additional credit. Group (b): *First semester; two hours a week; one unit-hour.* Group (c): *First semester; two hours a week; one unit-hour.* Professor BURCHELL.

30. Elements of Statistics. A course in statistical method. Prerequisite to course 31. One lecture, one quiz, and four hours laboratory work a week for which a credit of three

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unit-hours is given. *First semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Mr. HESS.

31. Economic Statistics. Prices, wages, family budgets, labor, financial statistics, etc., will be studied. One lecture, one quiz and four hours laboratory work a week, for which a credit of three unit-hours is given. This course is especially recommended to juniors intending to take thesis work in economics. *Second semester; Tu., Th., at* 12 *Laboratory hours to be arranged.* Mr. HESS.

32. Social Statistics. Includes a study of vital statistics, suicide, crime, pauperism, etc. One lecture, one quiz and four hours laboratory work a week, for which a credit of three unit-hours is given. May be taken without course 30. *Second semester; Tu., Th., at* 12. (Omitted in 1908-09.) Associate Professor ADAMS.

33. Financial History of the United States. The main lines of our financial development, including our monetary and banking history, will be traced by means of lectures, of which two will be given each week. Readings in the literature of the subject and topics for investigation will be assigned. A third hour each week will be devoted to quizzes on the lectures and assigned readings. *Second semester; M., W., F., at* 8. Professor SCOTT.

34. Corporation Finance and Securities. A study of the finances and securities of railroad and industrial corporations, and of investment and speculation in their securities. Two divisions. *First semester; M., W., F., at* 10 *and at* 11. Dr. PRICE.

34a. The Money Market. Lectures on the machinery, methods, and movements of the American and English money markets, accompanied by exercises in the interpretation of the weekly statements of the Associated Banks of New York and the Bank of England, the English bank and market rates, the published rates on loans in the New York market, and the rates of foreign exchange. *First semester; M., W., F., at* 12. Professor SCOTT.

35. Transportation and Communication. A general introductory course dealing with the more important principles and facts relating to railways, waterways, and the express, telephone, telegraph, and postoffice services. *Second semester; M., W., F., at* 9. Professor MEYER and Mr. HESS.

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36. Special Problems in Transportation. An advanced course in which the more important special transportation problems are discussed in detail. Each student pursues an independent line of investigation. Lectures and reports. Open to students who have had course 35 or its equivalent. *Second semester; Tu., Th., at* 9. (Omitted in 1908-09.) Assistant Professor LORENZ.

37. Corporation Economics. Influence of an enlarging scale of production upon business organization; forms of organization antecedent to the joint stock company; historical development of the business corporation; history of joint stock companies in England and the United States under common law, charters, and registration acts; the economies and wastes of large scale production and of monopolies; pools, trusts, and consolidations; legislation and supervision. *Second semester; M., W., F., at* 9. Dr. PRICE.

38. Insurance Economics. Principles and methods of insurance; rise, progress, and problems of associations for indemnity. Special attention will be given to the various forms of life insurance, including an elementary survey of life insurance mathematics. *Second semester; M., W., F., at* 10. Dr. PRICE.

39. Social Psychology. Genesis, forms, and phases of the social mind and its reaction upon the individual mind. The laws of mob-mind, "craze," fashion, conventionality, custom, "spirit of the age," public opinion, etc. Studies of nonconformity, individuality, leadership, innovation, the role of great men. The endeavor is to reach key principles for interpreting contemporary society. *First semester; M., W., F., at* 11. Professor Ross.

40. General Sociology. A systematic survey of the social processes with the view of establishing principles and laws. The inductive method is followed, and it is hoped the orderly presentation of a large amount of classified data will aid the student to build his own sociology. *Second semester; M., W., F., at* 11. Professor Ross.

41. Charities and Corrections. A study, first, of the dependent class, with special reference to slum conditions; second, of the defective class, and the institutional treatment of this class; third, of the delinquent class, causes and prevention of crime, prison management and discipline. Reforma-

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tories and other public institutions will be visited. *Second semester; M., W., F., at* 10. Professor Ross.

42. Public Utilities. A comparison of public regulation and public and private ownership of municipal utilities in American states and foreign countries, including constitutional and judicial limitations, delegation of legislative power to commissions, physical valuation, reasonable rates and services, organization of public employees, cost, efficiency, social and political results. *First semester; lectures, M., W., F., at* 8. *Second semester; research, Tu., 4 to* 6. Professor Commons and Assistant Professor Scott.

44. Socialism. Examination of the underlying causes of the socialist movement of modern times, particularly as these causes are found in the Industrial Revolution of the 18th and 19th centuries, together with a brief historical survey of the various schools of socialist thought. The aim of this course is a critical but impartial study of socialism as a philosophy of industrial evolution and as a program of economic reform. *M., W., F., at* 10. (Omitted in 1908-09.) Professor Ely.

45. Value and Prices. The evolution of theories of value and prices, the present status of these theories, the relation of theories of money and credit to the problem, the history of price movements, price statistics and their interpretation are the most important topics treated. Lectures and discussions. *Second semester; Tu., Th., at* 12. Professor Scott.

46. Advanced Economics. An advanced course in general economics intended primarily for students who have had course 1 and intend to major in political economy. *Second semester; Tu., Th., at* 10. (Omitted in 1908-09.) Associate Professor Adams.

47. Early Development of Man in Northern and Central Europe. First traces of man; how dated? Evidence of geology and palaeontology. River-drift and cave man. Art of "ivory" and "horn" periods. Relations of palaeolithic and neolithic races and culture. Immigrations from south and east; introduction of cereals and domestic animals, agriculture, and crafts. Transition to metal. Prehistoric monuments; kitchen-middens, artificial caverns, lake-villages, terra mare

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and crannogs, megaliths. Halstatt and La Tène cultures. *First semester; Tu., Th., at* 10. Mr. HAWES.

48. Early Development of Man in Southern Europe. The Mediterranean basin and its earliest inhabitants. Bronze Age civilization of the Aegean Islands; progress of arts; religion and writing; foreign intercourse. Parallel development on the mainland; Minoans, Mycenaeans, and Etruscans. Evidence of excavations; pottery as a guide to chronology. Invasion from the north. Early trade routes. Changes coincident with the introduction of iron. The Aryan problem. *Second semester; Tu., Th., at* 10. Mr. HAWES.

Primarily for Graduates

50. Seminary in Finance. For graduate students who desire training in the investigation of financial topics. For the year 1908-09 the topics assigned will be connected with recent movements on the New York money market. *First semester; Th.,* 4 *to* 5:30. Professor SCOTT.

51a. The Classical Economists. The evolution and characteristics of the classical political economy of England. Especial attention will be given to the economic, social and philosophical environment in which this system of thought grew up, and to the specific forms it assumed in the writings of the Physiocrats, Adam Smith, David Ricardo, and John Stuart Mill. Lectures and round-table discussions. *Summer Session; M., Tu., W., Th., F., at* 9. Professor SCOTT.

52. The Distribution of Wealth. Part I. This course is an introduction to the economic philosophy of distribution. Special attention will be paid to the relations of property, public and private, to distribution. *Summer Session,* 1908. *M., Tu., W., Th., F., at* 11. Professor ELY.

53. Distribution of Wealth. Part II. The shares of the various factors in distribution, viz.: rent, interest, profits, and wages. Landed property and the rent of land will receive chief attention in 1908-09. May be taken by those who have not had Part I, course 52. *First semester; M., W., F., at* 10. Professor ELY.

54. Public Finance. This course deals first with the nature of public finance as a science and with its history, with the

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development and working of the public economy, and then proceeds to a discussion of public expenditures and revenues. Given in connection with course 57 and open only to students who have had an introductory course in Public Finance. *First semester; Tu., Th., at* 11. Professor ELY.

55. American Public Finance. Part I. The financial history of the United States. A critical and historical discussion of the finances of the federal government. *Second semester; Tu., Th.*, 2:30 *to* 4:00. (Omitted in 1908-09.) Associate Professor ADAMS.

56. American Public Finance. Part II. An historical and critical account of the finances of the American commonwealths and local political units. *Second semester; Tu., Th.*, 2:30 *to* 4:00. (Omitted in 1908-09.) Associate Professor ADAMS.

57. Principles of Taxation. A discussion of the history, principles, and problems of American taxation. Open only to students who have had previous training in Public Finance. *Second semester, Tu.*, 4 *to* 6. (Omitted in 1908-09.) Associate Professor ADAMS.

58. Monopolies and Trusts. This course will be based on Ely's *Monopolies and Trusts*, and will consist of lectures and discussions supplementary to that work. Reference books: Gunton's *The Trusts and the Public*, Jenks' *The Trust Problem*, Hobson's *Economics of Distribution*, and the Proceedings of the Chicago Conference on Trusts. *Summer Session*, 1908. *M., Tu., W., Th., F., at* 10. Two unit-hours. Professor ELY.

60. Seminary on Cities. Growth, location, structure, and economic basis. Comparison of city with country in respect to sex, age, race, birth rate, longevity, marriage, divorce, pauperism, criminality, vice, education, moral character, intellectual traits and political leanings. *First semester; W.*, 7:15 *to* 9:15 P. M. (Omitted in 1908-09.) Professor ROSS.

61. Seminary on the Psychology of the American People. Comparison with other peoples and of one American community or section with others in respect to pauperism, vice, criminality, migrancy, industriousness, forcefulness, sociability, emotionalism, stability, conservatism, etc. Casual importance of race, social history, physical environment, economic and cultural factors. *Second semester; W.*, 7:15 *to* 9:15. Professor ROSS.

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62. Seminary in Special Criminology. A study of the nature, extent, varieties, and effects of contemporary wrong-doing, especially in politics and business, and an inquiry as to how far the phenomena may be explained by changes in American life and society. *Second semester; W.*, 7:15 *to* 9:15. (Omitted in 1908-09.) Professor Ross.

63. Seminary on the Dynamics of Population. The factors—economic, military, social, political, legal, and religious—which influence the quantity and quality of population. Natural, social, and artificial selection among men. Outlines of eugenics. *First semester; W.*, 7:15 *to* 9:15 P. M. Professor Ross.

64. Labor and Industrial History. The development of the labor movement since 1860, including political, legislative, and judicial changes. *Throughout the year; Tu., Th., at* 10. (Omitted in 1908-09.) Professor Commons.

65. Research Course in Labor and Industry, 1840-1860. *Throughout the year; Th.*, 4 *to* 6. Professor Commons.

66. Seminary in Taxation. For the year 1908-09 the subject will be taxation in American states and cities. *Every other week; Tu.*, 7:30 *to* 9:30. Professor Ely and Associate Professor Adams.

67. Seminary on the Races of European Russia. A research course to determine the ethnic composition of the Russian people, and the status and present tendencies of the diverse elements. The enquiry will be based on anthropometric statistics, supplemented by archaeology and history. Papers will be assigned. *First semester; W.*, 4:00 *to* 5:30. Mr. Hawes.

68. Seminary on Primitive Tribes and Institutions within the Russian Empire. Linguistic and ethnic distributions in northeast Siberia. Who are the Ainus? Primitive culture as illustrated by the customs, occupations and beliefs of the natives of Sakhalin. Comparisons with other backward peoples. *Second semester; W.*, 4:00 *to* 5:30. Mr. Hawes.

70. Economic Conference. The faculty and graduate students of the department meet twice each month for conference and discussion of individual investigations, current economic literature, and other suitable topics.

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SPECIAL LECTURES

In addition to the regular courses of class instruction and lectures described above, special lectures are given by scholars and public men from without the University.

POLITICAL SCIENCE

PROFESSORS PARKINSON, REINSCH; ASSISTANT PROFESSORS SCOTT, SPARLING; DR. MCCARTHY; MR. DUDGEON, DR. SCHAFFNER AND MR. SHEPARD.

The courses primarily for undergraduates are open for election in the sophomore and junior years. As a rule, at least five semester hours of this work should be done before electing any of the advanced courses. The courses for undergraduates and graduates are open for election by juniors, seniors, and graduates. Sophomores of advanced standing may make arrangements to take some of these courses (11, 12, 15, 19, 20, 22, and 27). The requirement for an undergraduate major in Political Science, in addition to the thesis, is twenty-one semester hours as a minimum.

In order to enable students whose main work is in fields not allied to political science and who may lack the time to take the longer courses, to obtain a general view of the problems of politics, the following arrangements have been made; certain brief lecture courses are given (courses 4 and 19) which deal with subjects of interest to students in general, and in which only a limited amount of outside reading is required. These courses deal with the American Constitution and with present day problems of international politics. Such students may also take the lectures in course 7 (American Politics and Government) and course 15 (Municipal Government), without doing the outside reading and topic work required of regular students. They will be examined only on the lectures and will receive one-fifth credit for the work.

Primarily for Undergraduates

1. Elements of Political Science. A general survey of the field of political science. *First semester; M., W., F., at* 8. Assistant Professor SPARLING.

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2. Elementary Law. The nature and sources of law and the methods of its application, including a general view of the system of private law. A general elective, recommended especially to students intending to study law, teachers of commercial law, and students of economics and politics. *First semester; M., W., F., at* 11. Assistant Professor SCOTT.
3. Elements of Administration. The theory of administration, and a survey of the administrative systems of the chief states of modern Europe and of the United States. *First semester; Tu., Th., at* 8. Assistant Professor SPARLING.
4. The Constitution of the United States. An outline course of lectures designed primarily for those who cannot give more time to this subject, but also for students preparing to teach civics in secondary schools. Some of the lectures will deal with the English constitution. *Throughout the year; Th., at* 10. Professor PARKINSON.
6. Administrative Problems. A survey of the primary administrative activities of the chief states of Europe and the United States. *Second semester; Tu., Th., at* 8. Assistant Professor SPARLING.
7. Government and Politics in the United States. A general study of the American system of government in its local, state, and federal organs and their relations to each other, as well as of the methods of political action. *Throughout the year; Tu., Th., at* 9. *(Students may take lectures only, receiving one unit-hour credit.)* Assistant Professor SCOTT.

For Undergraduates and Graduates

8. Introduction to the History of Continental European Law. In 1907-08 this course was given by the Department of History (course 32).
9. Roman Law. In 1907-08: The historical development of the Roman law and its reception and influence in other countries. In 1908-09: The Institutes of Roman law. The principles of the law of persons and property. *First semester; Tu., Th., at* 10. Mr. SHEPARD.
10. History of English and American Law. A study of the development of legal institutions in connection with political and social history. *Second semester; M., W., at* 12. Professor REINSCH.

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11. Jurisprudence. Analysis of the main concepts of the science of law, on the basis of the juristic classics. Open to students who have had an elementary course in law. *Second semester; M., W., F., at* 11. Assistant Professor SCOTT.

12. English and American Constitutional Law. Lectures upon the development of the English constitution from the time of Magna Charta, with emphasis upon its unwritten growth since the Revolution of 1688. These lectures are followed by a study of the constitution of the United States in the light of the highest judicial interpretation. *Throughout the year; M., W., F., at* 10. Professor PARKINSON.

13. Selected Cases in Constitutional Law. A study of the principal judicial decisions and opinions interpretative of the interstate commerce clause of the federal constitution. Open to graduates and other advanced students who have had course 12 or its equivalent. *Second semester; Tu., Th., at* 11. Mr. SHEPARD.

15. Municipal Government in Europe and the United States. *Second semester; M., W., F., at* 8. *(Students may take lectures only, receiving one hour credit.)* Assistant Professor SPARLING.

16. State Administration. A study of the local and state administrative systems of the United States. *First semester; M., W., F., at* 9. Assistant Professor SPARLING.

17. Federal Administration. A study of the organization and functions of the different branches of our federal service. *Second semester; M., W., F., at* 9. Assistant Professor SPARLING.

18. International Law. The work during the first semester will deal with diplomacy and the relations in time of peace; during the second semester arbitration and the law applied in time of war will be studied. *Throughout the year; Tu., Th., at* 11. Professor REINSCH.

19. Contemporary International Politics. A course of weekly lectures on questions of international or foreign politics which are of special importance at the present time. May be elected in successive years, as subject matter is changed annually. *Throughout the year; W., at* 5. Professor REINSCH.

20. Oriental Politics and Civilization. The relations of the European powers and the United States to China and Japan, as

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well as the principal factors in the social and political life of Japan, China and India, will be studied. *Second semester; M., W., F., at* 10. Professor REINSCH.

21. Colonial Politics. A study of the principal systems of colonial government and of the methods of colonial public administration, especially as affecting finance, commerce, agricultural and industrial development, labor, and education in the dependencies. *First semester; M., W., F., at* 10. Mr. SHEPARD.

22. Party Government. A study of the theory and development of the party system; the organization and methods of action of political parties in the United States; the legal control of parties; and reform tendencies. *First semester; Tu., Th., at* 10. Assistant Professor SCOTT.

23. Consular Service. A study of the modern consular systems and methods, with special emphasis upon the American system. *First semester; Tu., Th., at* 9. (Omitted in 1908-09.) Assistant Professor SPARLING.

25. The Law of the Press. The law of copyright, literary property, libel, privileged publications, and other topics relating to the publication of books and newspapers. Designed especially for students preparing for journalism and the law. *Second semester; M., at* 3. Assistant Professor SCOTT.

26. The Theory and Practice of Legislation. A study of the methods of procedure of legislative bodies, and the preparation of the subject matter and form of bills. The legislature will be in session from January to June, 1909. *Throughout the year; M., W., F., at* 12. Dr. MCCARTHY, Dr. SCHAFFNER and Mr. DUDGEON.

27. European Governments. A descriptive presentation of the constitutional organization and practical working of the principal national governments of Europe. *First semester: M., W., F., at* 11. Mr. SHEPARD.

28. Comparative Study of Constitution Making. (Omitted in 1908-09.) Dr. MCCARTHY.

29. Teachers' Course. Methods of teaching government in secondary schools. *Second semester; Th., at* 5. Professor REINSCH.

30. Administration of Punitive Justice. This course will deal with the methods of discovery, prosecution and punishment of crime; the functions of the police, prosecuting officials

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and jury; and defects in the administration of criminal laws. The technical parts of criminal law and procedure will not be treated, but the study will be from the point of view of the student of political science. *Second semester; Tu., Th., at* 10. Assistant Professor SCOTT.

31. Latin-American Political Institutions. A comparative study of the constitutional and administrative systems of the Latin-American Republics. *First semester; Tu., Th., at* 12. Assistant Professor SPARLING.

32. Current Political Topics. Study of current political problems with training in the discriminating use of sources and in effective literary presentation. A training course designed for students preparing for journalism. Open to seniors and first year graduate students. *Throughout the year; Tu., Th., at* 10. Mr. HORNBECK.

42. Public Utilities. A comparison of public regulation and public and private ownership of municipal utilities in American states and foreign countries, including constitutional and judicial limitations, delegation of legislative power to commissions, physical valuation, reasonable rates and service, organization of public employees, cost, efficiency, social and political results. *First semester; lectures, M., W., F., at* 8. *Second semester; research, Tu.*, 4-6. Professor COMMONS and Assistant Professor SCOTT.

Primarily for Graduates

51. Special Course. 1907-08. Deutsches Staatsrecht. Vorlesungen und Praktikum. *Second semester; Tu.*, 4 *to* 6. E. FREIH. V. TEUBERN.

52. Seminary in Comparative Legislation. This course is open to undergraduates who have had course 26. *Throughout the year; F.*, 4 *to* 6. Dr. MCCARTHY and Dr. SCHAFFNER.

55. History of Political Thought. The development of political philosophy from the Greeks to the present time, and its connection with political history. *Second semester; M., W., F., at* 10. Mr. SHEPARD.

56. Philosophy of the State. A critical study of contemporary political thought and terminology. *First semester; Tu.*, 4 *to* 6. Professor REINSCH.

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57. Juristic Classics. In 1908: The Institutes of Gaius, first two books; reading and commentary. *Second semester; F., at* 12. Mr. Shepard.

59. Seminary in Administration. A study of the commission system in state administration. *Throughout the year; Tu.*, 7:30 *to* 9 P. M. Assistant Professor Sparling.

60. Seminary in International Law and politics. For 1908-09: A study of some selected topics in international law and diplomacy. *Throughout the year; W.*, 7:30 *to* 9:30 P. M. Professor Reinsch.

61. Seminary in American Constitutional Law. Some important constitutional problem will be studied. *Second semester; Th.*, 4 *to* 6. Assistant Professor Scott.

For groups of studies in the departments of History, Political Economy, and Political Science, arranged as special training courses in practical sociology, statistics, public service, and journalism, see the special announcement of the above departments, which may be had upon application to the Registrar.

GREEK

Professors Kerr, Smith; Associate Professor Laird; Assistant Professors Fiske, Showerman; and Mr. Burdick.

A course in Elementary Greek is offered for the benefit of students who have not taken the preparatory work in the high school. It is open to all freshmen, whatever group of studies they may have offered for admission, and may also be taken in any other year, counting ten hours towards the fulfillment of the language requirement of sixteen or twenty-four hours, or as an elective in connection with any line of work. On completion of course A, a good student may, on the recommendation of the instructor, be admitted to course 1, thus gaining the opportunity of advancing more rapidly than if the second year were spent on course B. An exceptionally strong student, who has taken course A in his freshman year, and desires then to make Greek his major, may in his sophomore year take courses 1 and 2, and thereby be enabled to carry on advanced work in his junior and senior years. The requirements for an undergraduate major in Greek

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are, in addition to the thesis, a minimum of twenty-two semester hours, not including courses A and B.

The object of the graduate courses in Greek is to secure, on the part of advanced students, wide reading in Greek authors, acquaintance with the latest results of philological investigation through constant reading of critical journals, the forming of habits and learning of methods of research. In pursuance of the last named purpose especially, the Greek Seminary meets once a week to hear and to discuss carefully prepared papers, the members leading in turn. A full Seminary course covers three years, embracing usually the following subjects: (a) Thucydides or Greek historiography, (b) the Greek Drama, (c) Greek lyric poetry. For one or other of these, courses 24, 25, or 26 is occasionally substituted.

Primarily for Undergraduates

A. Elementary Greek. White's *Beginner's Greek Book*, Xenophon's *Anabasis*. *Throughout the year; M., Tu., W., Th., F., at* 12. Professor SMITH and Mr. BRANDT.

B. Xenophon's *Anabasis* III-IV, Homer's *Odyssey* I-IV, Greek Composition. *Throughout the year; M., W., F., at* 10. Mr. BURDICK.

For students who have had one year of preparatory work.

1a. Herodotus VIII, Homer's *Odyssey* V-XII, Plato's *Apology* and *Crito*. *Throughout the year; M., W., F., at* 8. Associate Professor LAIRD.

For students who have had two years of preparatory work.

1b. Greek Prose Composition and Sight-reading. *Throughout the year; Tu., Th., at* 8. Professor SMITH or Associate Professor LAIRD.

2a. The *Philippics* of Demosthenes, Thucydides VII, Goodwin's *Moods and Tenses*. *First semester; M., W., F., at* 10. Associate Professor LAIRD.

Euripides, two or more plays, Jebb's *Primer* of *Greek Literature*. *Second semester; M., W., F., at* 10. Associate Professor LAIRD.

2b. Herodotus VII, or selected dialogues of Lucian, and Euripides, (two plays). *Throughout the year; M., F., at* 11. Professor SMITH and Associate Professor LAIRD.

For those who have had course 1, or whose preparatory work has been particularly good.

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3. Greek Prose Composition. *Throughout the year; W., at* 11. Associate Professor LAIRD.
   This course will be required of those who expect to get recommendations to teach Greek.
4. Easy Greek for Sight Reading. Open to those who have completed course 1. *One hour a week.* Professor SMITH.

For Undergraduates and Graduates

5a. Greek Lyric Poets. Study of meters. *First semester; M., W., F., at* 11. (Omitted in 1908-09.) Professor SMITH.

5b. Thucydides; Demosthenes. *Second semester; M., W., F., at* 9. (Omitted in 1908-09.) Professor SMITH.

6. Greek Dramatic Poets. *First semester*, Aeschylus (two plays), Sophocles (two plays). Study of meters. *Second semester*, Aristophanes (two plays), Aristotle's Poetics, discussion of the Greek drama. *M., W., F., at* 9. Professor SMITH.

7. Greek Orators. *Throughout the year; Tu., Th., at* 9. Associate Professor LAIRD.

8. Plato. *The Republic.* Books I, II, III, and IV, with selections from other parts of the dialogue. This course is intended as an introduction to the study of Greek philosophy. *Throughout the year; Tu., Th., at* 9. Professor KERR.

10. Advanced Greek Composition. *First semester; once a week*, Professor SMITH or Associate Professor LAIRD.

11. Modern Greek. A study of the changes in form and structure which the language has undergone since the classical period. *Throughout the year; Tu., Th., at* 9. (Omitted in 1908-09.) Professor KERR.

12. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Throughout the year; Tu., Th., at* 11. (See Latin 12.) (Omitted in 1907-08.) Assistant Professor SHOWERMAN.

13. Greek Literature in English Translations. A knowledge of Greek is not required. *Throughout the year; Tu., Th., at* 12. Professor SMITH.

15. Classical Archaeology. The history and appreciation of Greek sculpture, architecture, and painting. A course in·

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troductory to the study of art. Assistant Professor SHOWERMAN. (See Latin 22.)

16. Greek Religion. (See Latin 27.)

Primarily for Graduates

20. Thucydides. The whole of the author is read privately by the members of the class, but the formal exercises of the Seminary are devoted usually to the elucidation of the speeches of a single book, especial attention being given to text criticism. *Throughout the year; S.*, 9 *to* 11. Professor SMITH.

21. Greek Drama. Sophocles. The whole author is read privately by the members of the class. As supplementary to this course the scenic antiquities will be studied. The general treatment in courses 21 and 22 will be literary in character. *Throughout the year; S.*, 9 *to* 11. (Omitted in 1908-09.) Professor SMITH.

22. Lyric Poetry. Especial attention is given to Pindar, the whole being read privately. *Throughout the year; S.*, 9 *to* 11. (Omitted in 1908-09.) Professor SMITH.

23. Greek Dialects. A study of dialect sounds and forms based on the inscriptions. Solmsen's *Inscriptiones Graecae* will in the main be followed. *Two hours a week for a portion of the year, as part of the regular seminary work.* Associate Professor LAIRD.

24. Greek Literature. Lectures, with selections from Greek authors, read by the class: Lyric Poetry. *First semester; twice a week.* Drama and History. *Second semester; twice a week.* (Omitted in 1908-09.) Professor SMITH.

25. Greek Orators. Antiphon, Andocides, Lysias, and Isaeus The whole of these authors will be read by the class. *Throughout the year; W.*, 4:30 *to* 6. (Omitted in 1908-09.) Associate Professor LAIRD.

26. Herodotus. The whole of the author is read privately by the members of the class. *Throughout the year; M.*, 4 *to* 6. (Omitted in 1908-09.) Associate Professor LAIRD.

30. Greek Grammar. History of the sounds and forms. *Throughout the year; Tu., Th., at* 5. Associate Professor LAIRD.

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31. Greek Syntax. Lectures on the development of Attic usage, with particular reference to the cases and modes. *Th., at* 8. Associate Professor LAIRD.

33. Journal Club. Reports on and discussion of current philological literature. *One hour a week throughout the year.* Professor SMITH and Associate Professor LAIRD.

LATIN

PROFESSOR SLAUGHTER; ASSISTANT PROFESSORS FISKE, LAIRD, SHOWERMAN; DR. ALLEN, MR. BOYD, MR. BRANDT, MR. COLBURN, AND MR. SHANNAHAN.

The courses in Latin are divided into three groups, as follows,

I. Courses A to 6 are intended for undergraduates in the early years of the college course. They form an introduction to the more advanced courses, and furnish, for those who do not continue the subject beyond the second year in college, an acquaintance with the best specimens of Latin prose and verse. They may not be counted for the master's degree. Course A is intended for students whose preparation has for any reason been less than the amount nominally required for entrance to the University. It counts toward the bachelor's degree, and is accepted in fulfillment of the language required in the University. It will not be accepted as part of a Latin major. Course 1 must precede all other courses except A. Course 2 is recommended to students who intend to make Latin a major, and should be taken in the first year along with course 1.

II. Courses 8 to 23 are open to students who have satisfactorily completed courses 1 and 3, or an equivalent, in group I, and may be counted towards the master's degree.

III. Courses 25 to 33 are primarily for graduate students, and are ordinarily not open to undergraduates, or those who have completed less than twenty-six semester hours of undergraduate Latin.

Latin Major

The requirements for an undergraduate major in Latin are, in addition to the thesis, twenty-two semester hours as a minimum. At least ten semester hours must be chosen from Group II, but no specific requirement of courses is made.

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Primarily for Undergraduates

A. Cicero and Vergil. Four orations of Cicero and six books of Vergil's *Aeneid* will be read in class. Some attention will be given to writing Latin. *Throughout the year; M., Tu., W., Th., F., at* 8. Mr. BOYD.

1. Livy, Cicero, and Terence. Livy, Books I and XXI; Cicero, *De Senectute*, and Terence, *Phormio* and *Andria*, will be read. The class will meet in four sections. *Throughout the year; M., W., F., at* 8, 10, *and* 3, and *Tu., Th., S., at* 10. Assistant Professors FISKE and SHOWERMAN and Dr. ALLEN.

2. Prose Composition and the reading of easy prose authors. The translation from Latin requires no preparation, and is intended to supplement the work in writing Latin. *Throughout the year; Tu., Th., at* 8, 10, *and* 3. Assistant Professors FISKE and SHOWERMAN, Dr. ALLEN, Mr. BRANDT, and Mr. COLBURN.

3. Horace. Selections from the odes, satires, and epistles of Horace. *Throughout the year; M., W., F., at* 9. Professor SLAUGHTER and Assistant Professor SHOWERMAN.

4. Advanced Prose Composition with a special study of Latin syntax. This course must be preceded by course 2. *Throughout the year; Tu., Th., at* 3. Assistant Professor FISKE.

5. Catullus, Ovid, Pliny, and Martial. This course is intended to supplement course 3, and should be taken with or after it. *Throughout the year; Tu., Th., at* 9. Dr. ALLEN.

6. Elementary Latin. (Free Elective.) A course covering the elements of Latin and Caesar's *Bellum Gallicum*, Bks. I-III will be offered, if a sufficient number of students desire it. This course can not be used to satisfy the University's requirements in language. *Throughout the year; M., Tu., W., Th., F., at* 8. Mr. SHANNAHAN.

For Undergraduates and Graduates

8. Cicero's Letters and Orations. A reading course, with lectures and assigned topics. Special attention will be paid to the life and personality of Cicero. *First semester; M., W., F., at* 8. Assistant Professor SHOWERMAN.

9. Plautus, Terence, and Seneca. This course is intended to give, by reading and supplementary lectures and topics, a

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general survey of the Roman drama. *First semester; M., W., F., at* 8. (Omitted in 1908-09.) Assistant Professor SHOWERMAN.

10. Lucretius. The first, third, and fifth books on the *De Rerum Natura*, and selections from the remaining books are read in class. Lectures and assigned readings on topics connected with the course. *Second semester; M., W., F., at* 10. Professor SLAUGHTER.

11. Vergil. The last six books of the *Aeneid* are read in class, with selections from Vergil's other works. Lectures and assigned reading on topics connected with the course. *First semester; M., W., F., at* 10. Professor SLAUGHTER.

12. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Throughout the year; Tu., Th., at* 11. Assistant Professor SHOWERMAN.

13. Literary Criticism. Pre-Ciceronian Latin writers of epic and drama are studied in connection with the criticism passed upon them by later writers. Selections are also read from those portions of the writings of Cicero, Horace, and Quintilian which deal with literary criticism. *First semester; M., W., F., at* 9. (Omitted in 1908-09.) Dr. ALLEN.

14. Oratory and Philosophy. Lectures are given on the history of Roman oratory and philosophy accompanied by readings from Cicero's rhetorical and philosophical works and the philosophical works of Seneca. *Second semester; M., W., F., at* 9. (Omitted in 1908-09.) Dr. ALLEN.

21. Ovid, Tibullus, Propertius, Fragments of Roman Tragedy. The selections read are made the basis for a systematic study of classical mythology. *Throughout the year; M., W., F., at* 9. Dr. ALLEN.

15. Latin Composition. This course is intended for seniors and graduate students. It must be preceded by course 4, or its equivalent. *Throughout the year; Tu., at* 3. Professor SLAUGHTER.

16. Teachers' Course. A course on the methods and materials used in teaching Latin, with special reference to the work in secondary schools. Lectures, reports, discussions and practice teaching. Special attention will be given to Vergil. Open to seniors who have had not less than twenty unit-

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hours of Latin. *First semester; M., W., F., at* 10. Professor SLAUGHTER.

17. Latin Literature. A general survey of Latin literature from the earliest period to the reign of Trajan, by means of lectures and required reading in the Latin authors, and in English translations. *Second semester; M., W., F., at* 10. (Omitted in 1908-09.) Professor SLAUGHTER.

18. Roman Satire. A reading course of selections from the works of Ennius, Lucilius, Varro, Horace, Seneca, Persius, Petronius, and Juvenal. Lectures are given on the origin and development of Roman satire. Topics are required. *Throughout the year; Tu., Th., at* 10. Assistant Professor FISKE.

19. Roman Historians to Tacitus. A reading course of selections from the Annalists, Cicero, Cæsar, Nepos, Sallust, Livy, and Tacitus. Lectures are given and topics are required. *Throughout the year; Tu., Th., at* 10. (Omitted in 1908-09.) Assistant Professor FISKE.

20. Literature of the Late Empire. A course in pagan and Christian authors, with lectures on the religion and literature of the period. The *Cupido et Psyche* of Apuleius and the *Octavius* of Minucius Felix will be read. *First semester; M., W., F., at* 8. Assistant Professor SHOWERMAN.

22, Classical Archaeology. (See Greek 15.) The history and appreciation of Greek sculpture, architecture, and painting. A course introductory to the study of art, consisting of lectures illustrated by means of the stereopticon. A knowledge of Greek and Latin is not necessary. Text-books and topics. *First semester; Tu., Th., at* 11. (Omitted in 1908-09.) Assistant Professor SHOWERMAN.

23. Roman Archaeology. Lectures on the remains of ancient Rome, with special reference to their historical and literary significance. Illustrated by lantern slides. A knowledge of Latin is not essential. *Second semester; Tu., Th., at* 11. (Omitted in 1908-09.) Assistant Professor SHOWERMAN.

For Graduates

25. Latin Grammar. Lectures on the sounds and forms of the Latin language. Open to graduates and properly qualified seniors. *First semester; W., F., at* 5. Assistant Professor LAIRD.

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26. Latin Syntax. Lectures on Latin syntax, illustrative of the historical method. *Second semester; Tu., Th., at* 8. Assistant Professor LAIRD.

27. Religion of the Greeks and Romans. Lectures, studies, and reports on the mythology, ritual, and religious institutions of the Greeks and Romans. *Throughout the year; M., W., at* 9. Assistant Professor FISKE.

28. Roman Archaeology. A course consisting of course 23, with an additional hour for presentation of reports on assigned topics. The extra hour will be arranged on consultation. *Second semester; Tu., Th., at* 11. (Omitted in 1908-09.) Assistant Professor SHOWERMAN.

29. Epigraphy and Palaeography. Lectures. Readings of inscriptions and facsimilies of Latin manuscripts. *Throughout the year; W.,* 4 *to* 6. Professor SLAUGHTER.

30. Latin Literature. Lectures and assigned readings, with a minute examination of the authors read. A two years' course. The period of the Republic is studied the first year. The period of the Empire is studied the second year. *Throughout the year; Tu., Th., at* 12. Dr. ALLEN.

33. Latin Seminary. The work of the Seminary varies from year to year according to the author or subject under discussion. In 1906-07, Plautus was the author studied. The critical work centered upon the *Miles Gloriosus*. Reports on assigned topics, analyses of plays, and lectures on Plautine metres and on the history of ancient comedy formed part of the work. The members of the Seminary read all of Plautus and Terence. In 1907-08, a critical and exegetical study of the Odes of Horace was made. The whole of the author was read privately by the members of the Seminary, and reports, topics, and lectures formed a part of the year's work. In 1908-09, the *Monumentum Ancyranum* will form the basis of the work, and a particular study will be made of the early Empire. *Throughout the year; Th.,* 4 *to* 6. Professor SLAUGHTER.

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HEBREW AND HELLENISTIC GREEK

PROFESSOR WILLIAMS; DR. BREslich AND DR. KELLY.

The various language and literary courses given below are open as electives to students in any department of the University who are prepared to carry them on with profit. The purposes for which they are pursued are (a) as a means to liberal culture; (b) as furnishing necessary data to a study of phonetics, philosophy of language, and comparative philology; (c) as an important department of history, archaeology, and art; and (d) as preparatory to studies in ethics and theology.

As may be seen from the following, the department also offers courses in Arabic, Assyrian, Syriac, and Aramaic.

Primarily for Undergraduates

1. The General Principles of the Hebrew Language. Reading of selections from Genesis. *Four times a week throughout the year.* Professor WILLIAMS and Dr. BREslich.
2. This course is the same as course 1, but begins in the second semester of each year as a two-hour study, and continues as a two-hour study during the first semester of the following year. Dr. BREslich.
3. Historical Hebrew. The books of Samuel, with a review of the verb. *Twice a week; first semester.* Dr. KELLY.
4. The Book of Deuteronomy. A general review of etymology. *Twice a week; second semester.* Dr. KELLY.
7. Exercises in Writing Hebrew. *Once a week throughout the year.* Professor WILLIAMS.
16. Selected chapters from the Gospels, and the general principles of Hellenistic Greek. For students who have not studied classical Greek. *Four times a week throughout the year.* Dr. BREslich.
17. This course is the same as course 16, but begins as a two-hour study in the second semester of each year, and continues as a two-hour study during the first semester of the following year. Dr. BREslich.
18. Matthew and Mark and a study of the etymology of Hellenistic Greek. *Twice a week throughout the year.* Dr. BREslich.

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19. Luke and Acts. Historical study with careful attention to Hellenistic Greek syntax. *Twice a week throughout the year.* Dr. BRESLICH.
23. History of the Hebrew People from the Settlement in Canaan to the Division of the Kingdom. A sketch of the literature of the period. *Once a week throughout the year.* Professor WILLIAMS.
24. History of the Hebrew People from the Division of the Kingdom to the Fall of Jerusalem. The literature of the Assyrian period. *Once a week throughout the year.* Dr. KELLY.
25. History of the Jewish People during the Maccabean and Roman periods. *Once a week; second semester.* Professor WILLIAMS.
26. Historical Geography of Palestine; Hebrew Archaeology; Recent Discoveries. *Once a week throughout the year.* Professor WILLIAMS.

For Undergraduates and Graduates

5. The Minor Prophets. Critical translation of the Hebrew text with close attention to vocabularies and syntax. *Twice a week throughout the year.* Dr. KELLY.
6. The Book of Job. A study of the form and characteristics of Hebrew poetry. *Twice a week throughout the year.* Professor WILLIAMS.
8. Hebrew Syntax, with selected passages for reading. *Twice a week throughout the year.* Dr. KELLY.
20. The Book of John. Critical study and textual criticism. *Twice a week throughout the year.* Professor WILLIAMS.
27. The Psalms: Books I and II, and a study of the form and characteristics of Hebrew poetry. *Twice a week throughout the year.* Professor WILLIAMS.

Of courses 5, 6, and 27 only two may be taken in any one year.

Primarily for Graduates

9. Advanced Hebrew Syntax. *Twice a week; first semester.* Dr. KELLY.
10. Advanced Hebrew Etymology. *Twice a week; second semester.* Dr. KELLY.

Courses 9 and 19 will be given in alternate years.

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11. Hebrew Seminary. In successive years The Law, one of the prophetical or poetical books, will form the center of the work. For 1908-09, the subject will be in poetry. *Once a week (two hours) throughout the year.* Professor WILLIAMS and Dr. KELLY.
12. Arabic. *First semester*: Easy reading and principles of the language. *Second semester:* Reading of selections and some of the shorter suras of the Quran. *Twice a week.* Dr. KELLY.
13. Advanced Arabic: The Quran. *Once a week throughout the year.* Dr. KELLY.
14. Elementary Assyrian. A study of selected texts and of (a) the grammatical principles of the language, and (b) the use of the material for lexicographical purposes. *Twice a week throughout the year.* Dr. KELLY.
15. Biblical Aramaic, ten weeks; Syriac, the remainder of the year. *Twice a week.* Alternates with 14. Dr. KELLY.
21. Hellenistic Greek Seminary. In successive years the Epistle of Paul to the Romans, the second gospel, and the fourth gospel will form the center of the work. *Once a week (two hours) throughout the year.* Professor WILLIAMS and Dr. BRESLICH.
22. Advanced Hellenistic Greek Grammar. *Twice a week throughout the year.* Professor WILLIAMS.

ROMANCE LANGUAGES

PROFESSORS OWEN, SMITH; ASSOCIATE PROFESSOR GIESE; ASSISTANT PROFESSORS GAY, REED; MR. COOL, MR. HERRICK, MR. KEITH, MR. MICHELL, MR. SCHLATTER, MR. SHANKS, DR. ZDANOWICZ, MR. GRIFFIN, MR. LA MOTTE, MISS SIMMONS.

French courses numbered below 10 are for students who have had no French, or have had less than two years in the high school. Students with only one year of high school French or its equivalent, may be allowed to enter course 4.

Courses beginning with 10 and numbered below 20 are for students who have had one year of college French, or two years of high school French. Students who have had more than two years of high school French should consult with the department before entering any French course.

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Courses beginning with 20 and numbered below 40 are for students who have had at least two years of college French, while courses numbered 40 and above are primarily for graduates.

Courses in all the Romance languages marked C and E are intended for Commerce and Engineering students. Similar courses are nearly always given for students of the College of Letters and Science, who will not be allowed to take Commerce and Engineering courses except by special permission of the instructor.

Major in Romance Languages

Students are allowed to major in French alone or by combining French with Spanish and Italian. The minimum requirement will vary according to the courses taken; students should consult with the department for complete details.

FRENCH

For Undergraduates

1. Elementary French. Grammar, reading, composition, and oral exercises. Fraser and Squair's *French Grammar*. The reading will be done in simple modern French prose. Considerable attention will be paid to pronunciation. *Four hours a week.* Thirteen sections. Assistant Professor REED; Mr. COOL, Mr. HERRICK, Mr. KEITH, Mr. MICHELL, Mr. SCHLATTER, Mr. SHANKS, Dr. ZDANOWICZ, Mr. GRIFFIN, Mr. LA MOTTE, Miss SIMMONS.
2. Elementary French. Special course for students who have had at least four years of Latin or German. *Tu., W., Th., F., at* 8. Assistant Professor GAY.
3. Elementary French. Begins the second semester and covers the work done in the first semester of course 1. Students taking this course may continue their work the following year with course 4. Two divisions. *M., W., F., S., at* 8; *and Tu., W., Th., F., at* 2. Mr. MICHELL.
4. Advanced Elementary French. This course continues French 3, covering, in the first semester, the work of the second half of French 1 and, in the second semester, somewhat more than the first half of second year French. Open also

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to students who have commenced French in the summer session or who enter with one year of high school French. *Tu., W., Th., F., at* 12. Mr. SCHLATTER.

5E. Elementary French for Engineers. In the first semester the work will be for the most part the same as that in course 1, except that more attention will be paid to reading. During the second semester Herdler's *Scientific Reader* or other works of similar character will be introduced. *Four hours a week throughout the year.* Three sections. Mr. SCHLATTER, Mr. GRIFFIN, Mr. LAMOTTE.

6C. Elementary French for students in Commerce. Reading, composition, and oral exercises. Chardenal's *Complete French Course.* Reading of easy prose. *Tu., W., Th., F., at* 9. Mr. HERRICK.

10. Second-year French. Reading and grammar. The following texts are intended to represent the character of the reading, rather than the actual works that may be used in each section: Sand's *La Mare au Diable;* Mérimée's *Colomba;* Daudet's Stories; Lamartine's *Jeanne d'Arc;* Renan's *Ma Sœur Henriette;* Augier and Sandeau's *Le Gendre de M. Poirier;* Molière's *L'Avare. M., W., F., at* 8. Dr. ZDANOWICZ. *Tu., Th., S., at* 8. Associate Professor GIESE. *M., W., F., at* 9. Professor SMITH. *M., W., F., at* 9. Assistant Professor REED. *Tu., Th., S., at* 9. Mr. MICHELL. *M., W., F., at* 10. Assistant Professor GAY. *M., W., F., at* 12. Mr. SHANKS.

11. Special second-year French. Reading and grammar. The class reading will be from *Le Roman d'un Jeune Homme Pauvre, La Petite Fadette,* and two plays of Molière. *M., W., F., at* 11. Professor OWEN.

12. Lectures on Thought and Language. *First semester. M., at* 11. At present embodied in course 11. Professor OWEN.

14. French Composition. Intended to supplement the second-year courses given above, and, except by special permission of the instructor, can be taken only by students of some other French course. *Th., at* 12. Mr. MICHELL.

15. French Conversation. The work is confined mainly to the class-room. Two hours a week, one hour credit. Except by special permission, it can be taken only in connection with some other French course. *Tu., Th., at* 8. Mr. SHANKS. *Tu., Th., at* 10. Mr. HERRICK.

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16E. Second-year French. For engineers. Continuation of course 5E. Reading in scientific and literary prose. Review of grammar. *M., W., F., at* 8. Mr. SHANKS.

17C. Second-year French. For students in Commerce. A practical course in conversation, composition, and reading. *Tu., Th., at* 11. Mr. HERRICK.

18. Rapid Sight Reading. The work will be largely confined to the class-room. Two hours a week, one unit-hour. Except by special permission, it can be taken only with some other French course. *Tu., Th., at* 9. Mr. KEITH.

For Undergraduates and Graduates

20. Advanced Reading. Continuation of course 11. The reading will be done in *Cinq-Mars* and *Ursule Mirouet. Throughout the year; M., W., at* 12, *unless changed by special arrangement.* Professor OWEN.

21. French Literature. From the Renaissance to the Revolution. Lectures with collateral reading. *Throughout the year; W., F., at* 9. Associate Professor GIESE.

22. French Literature. The classic drama. A detailed study of the literary and social influences that produced the classic drama. The first semester will be devoted mainly to Corneille and Racine, the second, to Molière. *Throughout the year; Tu., Th.*, at 9. (Omitted in 1908-09.) Mr. COOL.

23. French Literature. The nineteenth century drama. Lectures and assigned reading. Representative works will be read in class. Characteristic class reading is: Hugo's *Hernani;* De Musset's comedies; Dumas' plays; Scribe's *Le Verre d'Eau;* Pailleron's *Le Monde ou l'on s'ennuie;* Rostand's *Cyrano de Bergerac. Second semester; M., W., F., at* 10. Professor SMITH.

24. Advanced Composition and Conversation. Practice in writing and speaking based upon the reading of nineteenth century authors. *Throughout the year; Tu., Th., at* 11. Assistant Professor GAY.

25. French Literature. Prose writers of the seventeenth century. The class reading will be taken from Descartes, *Discours de la Méthode;* La Rochefoucauld, *Maximes;* La Bruyère, *Les Caractères;* Boussuet, *Orasions Funèbres;* Pascal, *Lettres Provinciales*, and will be accompanied by lec-

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tures and collateral reading on the authors studied and their work in relation to the intellectual and literary evolution of the century. *Second semester; M., W., F., at* 11. Professor SMITH.

26. French Literature. The nineteenth century novel. Rapid reading of the masterpieces of French fiction, with lectures on the origin of the Romantic novel in France and its evolution through the Realistic and Naturalistic schools. Balzac, Sand, Mérimée, Flaubert, Zola, and Daudet will be the principal authors read. *First semester; M., W., F., at* 11. Mr. SHANKS.

27. Advanced Conversation. Open to students who have had two or more years of French. Of suitable grade to follow French 15. Can be taken only in connection with some other French course except by consent of the instructor. *Throughout the year; Tu., Th., at* 9. One unit-hour. Associate Professor GIESE.

28. French Lyric Poetry and Versification. A study of lyric poetry from Villon to recent times. Lectures on French verse-structure from its origin to the present. *Second semester; three hours a week.* (Omitted in 1908-09.) Professor SMITH.

29C. Third-year French. For students in Commerce. Conversation, reading, and commercial correspondence. *Twice a week throughout the year.* Mr. HERRICK.

30C. Fourth-year French. For students in Commerce. Conversation, reading, and commercial correspondence. A continuation of course 29C. *Twice a week throughout the year.* Mr. HERRICK.

31. General Survey of French Literature. This is an elementary outline course recommended as an introduction to more extended study of special periods. Only the main currents of the literature and the writers of prime importance will be dealt with. A considerable amount of reading will be done in and out of class, in addition to lectures and occasional reports on authors read. *Throughout the year; M., W., F., at* 8. Assistant Professor REED.

33. Advanced Reading. Of suitable grade to follow course 20. Reading of Hugo's *Travailleurs de la Mer. Throughout the year; M., W., at* 3. Professor OWEN.

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34. The Romantic School. Lectures with collateral reading. *Throughout the year; Tu., Th., at* 10. Associate Professor GIESE.

35. Teachers' Course in French. A study of the aims and methods in teaching French. Lectures and reports (one unit-hour). A review of the essentials of grammar taught in first year French (one unit-hour). *First semester; one or two unit-hours.* Professor SMITH and Assistant Professor GAY.

36. Teachers' Course in French. A review of the work in second year teaching, dealing particularly with the following points: Pronunciation, reading and composition (one hour). Practice teaching and visiting classes, assigned work and reports (one hour). *Second semester; one or two unit-hours.* Professor SMITH and Assistant Professor GAY.

37. Molière. All of Molière's plays will be studied. Several representative comedies will be read in class. Lectures and assigned reading on Molière and the theater of his time with some consideration of his influence on later French comedy. *First semester; M., W., F., at* 10. Professor SMITH.

For Graduates

40. Old French. An introductory course. Phonology and grammar. Lectures and reading. Primarily for graduates, but may be taken by undergraduates of especially good preparation. *Twice a week throughout the year.* Professor SMITH.

41. Old French. An introduction to the Old French language and to the general laws of phonetic development from Latin to French. Nyrop's *Grammaire Historique de la Langue Française; La Chanson de Roland; Aucassin et Nicolette.* Undergraduates of sufficient preparation will be admitted to this course. *Twice a week throughout the year.* (Omitted in 1908-09.) Assistant Professor GAY.

42. Old French Literature. The Old French epic poetry. Lectures and much collateral reading. The history of the *Chansons de Geste* will be traced and several representative poems read during the year. Students in this course must be able to read Old French. *Twice a week throughout the year.* (Omitted in 1908-09.) Professor SMITH.

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43. Seminary in Old French. A study of the group of Old French epic poems known as the Cycle of the Crusades. Relation and development of the various branches with consideration of related prose works in Latin, Old French, and other languages. In the second part of the course a short introduction to Romance paleography will be given and some time devoted to the establishment from manuscript copies of a critical edition for a part of *Godefroi de Bouillon*. For graduates only. *Three hours a week throughout the year.* (Omitted in 1908-09.) Professor SMITH.

44. Old Provençal. Phonology and grammar. Poetry of the troubadours and other Provençal literature. Texts: Grandgent's *Phonology and Morphology of Old Provençal;* Appel's *Provenzalische Chrestomathie;* Restori's *Letteratura Provenzale.* Primarily for graduates, but may be taken by undergraduates of especially good preparation. *Throughout the year; W., F., at* 10. (Omitted in 1908-09.) Assistant Professor REED.

45. Principles of Language. Examination of linguistic thought, its special nature, and the less obvious verbal means of indicating both the elements of thought and their mode of combination. (See also course 12.) *First semester; Tu., at* 7:15 P. M. Professor OWEN.

46. Victor Hugo. A detailed study of Hugo's later work (1852-1885). Lectures and reports with extensive reading. This course is conducted in French. May be taken by undergraduates of sufficient preparation. *Twice a week throughout the year.* Associate Professor GIESE.

47. Literature of the Middle French Period. General survey of the 14th, 15th and 16th centuries; particular attention will be devoted to Froissart, Commines, Villon, Rabelais, and Montaigne. *Throughout the year; Tu., Th., at* 12. (Omitted in 1908-09.) Assistant Professor GAY.

48. Comparative Literature. The beginnings of medieval literature in Europe with especial reference to the influence of French and Provençal literature on the other countries of Europe. Lectures and assigned reading. Open to students of any language department. *Twice a week throughout the year.* Assistant Professor REED.

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71. Portuguese. Language and Literature. Class reading (Camoes, *Os Lusiadas)* with lectures on the development of the language and the history of the literature. *First semester; W.*, 2 *to* 4; *or to suit convenience of the class.* Assistant Professor REED.

49. Chrestien de Troyes. Reading and study of the works of Chrestien de Troyes. Open to students who have had work in Old French. Recommended to those who expect to take course 50 in the second semester. *First semester; twice a week.* Assistant Professor GAY.

50. The Arthurian Epic. Lectures on the origin and influence of the *Matière de Bretagne* with class and collateral reading. Some attention will be given to the inter-relation of the French and English literatures through the Celtic romances but the chief study will be devoted to the Old French poems due to the Celtic influence. Students must be able to read Old French. *Second semester; W.*, 4 *to* 6; *unless otherwise desired by the class.* Professor SMITH.

ITALIAN

1. Elementary Italian. Grammar, pronunciation, and easy composition. Reading from Bowen's *Italian Reader*, and such writers as Manzoni, Fogazzaro, Leopardi, and Alfieri. *Throughout the year; M., W., F., at* 11. Mr. SCHLATTER.

2. Italian Literature. Reading from the most important works of Italian literature with supplementary lectures. Students are requested to provide themselves with D'Ancona e Bacci's *Manuale della Letteratura Italiana.* Vol. I. (Barbera, Firenze, 1903) and Ford's *Romances of Chivalry in Italian Verse.* (Holt & Co., New York, 1907.) Alternates with Italian 60. *Tu., Th., at* 11. Mr. SCHLATTER.

60. Dante. An introduction to the life and times of Dante, with special study of the Divine Comedy. Alternates with course 2. (Omitted in 1908-09.) Mr. SCHLATTER.

SPANISH

Primarily for Undergraduates

1. Elementary Spanish. Grammar and reading. Giese's *First Spanish Book;* Alarcón's *Novelas Cortas Escogidas*, and *El Capitán Veneno;* Valdés' *Marta y Maria.* For students of

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the College of Letters and Science. *M., W., F., at* 12. Mr. MICHELL.

2EC. Elementary Spanish for students in Commerce and Engineering. Giese's *First Spanish Book*, and other easy prose. Students in the College of Letters and Science must take course 1, except by special permission of instructor. Three sections. *Four times a week throughout the year, at* 8 *and* 9. Mr. KEITH, Dr. ZDANOWICZ, and Mr. LA MOTTE.

3. Nineteenth Century Spanish. The modern novel, drama, and poetry will be studied. Open to students who have had elementary Spanish. *Throughout the year; Tu., Th., at* 12. Alternates with course 4. Associate Professor GIESE.

4. Spanish Literature. Reading of selections from Cervantes *(Don Quijote)*, from Calderón *(El Mágico Prodigioso)*, and from other classics. Alternates with course 3. *Throughout the year; Tu., Th., at* 8. (Omitted in 1908-09.) Assistant Professor REED.

5E. Second year. Scientific Spanish for Engineers. Reading and grammar. *First semester; M., W., F., at* 8. Mr. GRIFFIN.

6C. Second year in Commerce. Conversation, composition, and reading. In this course special attention is paid to the vocabulary of everyday life. Students in the College of Letters and Science who have had one year of Spanish must take course 3 or 4 unless allowed by special permission to enter this course. *Throughout the year; Tu., Th., at* 11. Mr. COOL.

7C. Third year in Commerce. Conversation, commercial correspondence, and reading. In this course special attention is paid to the vocabulary of commerce. *Throughout the year; W., F., at* 11. Mr. COOL.

8C. Fourth year in Commerce. Conversation, commercial correspondence, and reading. Continuation of course 7C. *Twice a week throughout the year.* Mr. COOL.

Primarily for Graduates

70. Old Spanish. The Poem of the Cid. Lectures on the Spanish epic and collateral reading. Old Spanish grammar and phonology. Texts: *Gramática Histórica Española*, by R. Menéndez Pidal; *Poema del Cid*, edited by Pidal; *Poetas Castellanos Anteriores al Siglo XV (Biblioteca de Autores*

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Españoles). Intended primarily for graduates, but may be taken by other advanced students of sufficient preparation. *Throughout the year; twice a week.* Alternates with Old Provençal. (Omitted in 1908-09.) Professor SMITH.

SCANDINAVIAN LANGUAGES

PROFESSOR OLSON.

This department offers instruction in all of the Scandinavian languages (Norwegian, Danish, Swedish, and Old Norse). From one year's instruction in Modern Norse the student is expected to be able to read both Norwegian and Danish authors. The principal courses are devoted mainly to Norwegian authors, but additional instruction in Danish and Swedish literature is offered to students desiring to pursue these branches beyond the limits of the prescribed courses.

Courses 2a and 2b, taken together, or courses 3 and 4, may be taken as part of the required language work. (See Index under Required Studies.)

Primarily for Undergraduates

1. Modern Norse. Olson's *Norwegian Grammar and Reader*, together with easy selections in prose and poetry. For beginners. *Three hours a week throughout the year.*

2a. Modern Norse. Selections from the *Reader*. Björnson's *Synnöve Solbakken* (Flom's edition), and his shorter peasant stories. *Three hours a week throughout the year.*

2b. Written and Oral Translation into Norse. The reading of prose selections as a basis for work in composition and conversation. *Once a week throughout the year.*

3. Kielland's *Skipper Worse* and Gundersen's *Norske Digte.* Two dramas by Holberg and three by Oehlenschlaeger are assigned for outside reading. *Twice a week throughout the year.*

4. Ibsen's *Brand* and *Peer Gynt.* As these dramas are of the greatest importance in Scandinavian literature, they are read critically and studied from both a linguistic and literary point of view. Much stress is placed on an adequate ethical interpretation. *Twice a week throughout the year.*

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5. History of Dano-Norwegian Literature. Broch and Seip's *Norsk og dansk Litteraturhistorie* and Prestgard's *Norske Kvad*, with lectures and papers presented by students on the authors under discussion. *Two hours a week throughout the year.*

6. Swedish Literature. Tegner's *Frithiofs Saga*, Runeberg's *Fänrik Stals Sägner*, Vinsnes and Aanrud's *Svenske Digtere*, and Warburg's *Svensk Litteraturhistoria*. Selma Lagerlöf's *Gösta Berlings Saga* and *Jerusalem* are assigned for outside reading. *Twice a week throughout the year.*

7a. Lectures on early Scandinavian literature and antiquities, with illustrative readings in translation. *Once a week; first semester.*

7b. Lectures on modern Scandinavian authors and literary epochs, with illustrative readings in translation. *Once a week; second semester.*

7c. An intensive study of selected dramas of Ibsen in English.

A knowledge of the Scandinavian languages is not required for courses 7a, 7b, and 7c.

For Undergraduates and Graduates

8. Old Norse. Vigfusson and Powell's *Icelandic Prose Reader* or Kahle's *Altisländisches Elementarbuch* and Nygaard's *Udvalg af den norröne Literatur. Twice a week throughout the year.*

2c. Modern Norse. Olson's *Grammar and Reader*, Björnson's *Synnöve Solbakken* and the shorter peasant stories, Ibsen's *Samfundets Stötter*, *Et Dukkehjem*, *Kongsemnerne*, *Brand*, and *Peer Gynt*. A rapid reading course for graduates who have a good knowledge of other modern languages. *Three hours a week throughout the year.*

9. Modern Norwegian Literature. The critical reading of representative dramas and novels. The principal authors studied are Ibsen, Björnson, Lie, and Kielland. *Throughout the year; twice a week.*

10. Studies in Norwegian Poetry. Selections from Wergeland, Welhaven, Munch, Moe, Björnson, and Ibsen, to illustrate the different epochs in the development of modern Norwegian literature. *Once a week; first semester.*

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11. Norwegian Dialect Writers. The principal authors considered are Aasen, Vinje, Garborg, and Sivle. Some attention is also given to the language reform movement. *Once a week; second semester.*

12. Scandinavian Literature. A general survey, with critical study of special periods. *Throughout the year; twice a week.*

GERMAN

PROFESSORS HOHLFELD, VOSS; ASSISTANT PROFESSORS EVANS, GOODNIGHT, ROEDDER, STERLING; MR. BRUNS, DR. HAUSSMANN, DR. HICKS, DR. KIND, DR. MORGAN, DR. PROKOSCH, DR. VEERHUSEN; MR. BLOOMFIELD, MR DEIHL, MRS. NEWPORT, MR. OSWALD, MR. ROLOFF, AND MR. WILD.

The courses in German are divided into the following four groups:—

A. The elementary courses represent the work ordinarily done in first and second year classes, and are so graded as to meet the needs of high school graduates with different degrees of preparation. Students without previous work in German enter course 1; those who have had two years of high school German enter course 2, 2G, 2L, 2S, 2C, or 2E; those who have taken three years of German in the high school enter course 2A, completing the equivalent of course 2 by the end of the first semester. Freshmen with four years of high school German are not allowed to enter any of these elementary courses. They should take up German 3A, unless their general course of study requires a special class in German, like 3S, 3C, or 3E. Students who possess a thorough practical knowledge of German considerably in advance of what their high school work indicates, should present themselves for an informal examination with a view of being assigned to more advanced classes. Credit for the omitted lower work will, however, be granted only in exceptional cases, regulated by special rules of the Faculty, and never without a formal examination.

B. The advanced practice courses differ much in character and grade of work, but have this in common that they do not deal chiefly with literature, being intended for specific, practical ends, definitely stated in each case. None of these courses are required of students wishing to study German solely for its litera-

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ture. Such students after completing course 2, should select their work from courses 15 to 20, though some of the work in composition, conversation, or sight reading may be advisable in connection with their literary courses.

C. The courses from 15 to 48 are literary courses of very different degrees of advancement, those from 40 to 48 being open to undergraduate students only in exceptional cases. Many of the less advanced courses, from 15 to 27, though different in subject matter, are of about the same grade. Elections from this group, therefore, are subject to certain restrictions stated below, after course 27. Ordinarily, about twelve unit-hours from courses 15 to 27 will be adequate preparation for the more advanced work in literature, as well as for the more elementary courses in philology. Students intending to specialize in German literature are advised to do related work in English literature, in medieval and modern history, and in philosophy. They should also pursue, to a fair degree of advancement, the study of at least one other foreign language and literature, ancient or modern.

D. The courses from 50 to 65 are devoted to work in German philology. While most of these courses are intended for graduate students working for a higher degree in German, some of them are well suited to the needs of advanced undergraduates. This is especially true of courses 50 and 51, which are required of all students expecting to teach German as their principal subject; but also of courses 52, 53, 57, and 59, all of which are so conducted as to be of direct benefit to properly qualified seniors.

Major in German

Students beginning the study of German in the University with course 1 will generally not be able to choose German as their major to good advantage. Students taking course 2 in their Freshman year should, as a minimum, devote to German eight unit-hours a year for the remaining three years, taking thus, including the thesis, a total of twenty-four unit-hours in advance of course 2. At least eight of these hours should represent class work in advance of course 27. This amount represents a minimum which will rarely prove sufficient in the case of those preparing to teach German as their principal subject. Of students of the latter class the following courses are required: 10 or 12, 14, (at least the one unit-hour course in methods), 30 or 33, 50 and 51.

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Germanistische Gesellschaft

The Germanistische Gesellschaft is an organization of students and instructors interested in the study of the German language and literature and of German life and culture. There are two general meetings each month, on Wednesday evenings, the programs consisting of lectures, recitations, dramatic performances, singing, and social entertainments. All students specializing in German, preparing to teach German, or wishing to keep up their knowledge of German, are urged to attend regularly.

ELEMENTARY COURSES

For Undergraduates

1. Beginners' German. Grammar and easy readings, with practice in speaking and writing German. *Four hours a week throughout the year.* Six sections. Dr. VEERHUSEN, Dr. PROKOSCH, Dr. MORGAN, Dr. HAUSSMANN, Mr. ROLOFF, and Mr. DEIHL.

1B. Beginners' German. Second semester only. In this course the work of the first semester is repeated. Students beginning the study of German at this time may complete course 1 in the Summer Session, or may ccontinue their work in the following year, in course 1A. *Second semester; Tu., W., Th., F., at* 2. Dr. VEERHUSEN.

1A. Advanced First Year German. Open to students who have taken course 1B or, for some special reason, have had but one year of German at the high school. *Throughout the year; Tu., W., Th., F., at* 11. Mr. WILD.

2. Second Year German. Modern prose, narrative and dramatic, selected lyrics, and a drama by Schiller. Review of the first year grammar, and elementary syntax. Written and oral exercises. For students who have had course 1, or two years of high school German, or an equivalent. Engineering freshmen may take course 2 in place of 2E. *Four hours a week throughout the year.* Seven sections. Assistant Professors STERLING, GOODNIGHT; Dr. HICKS, Mr. OSWALD, Mr. BLOOMFIELD.

2G. Second year German. This section of German 2 is so conducted as to meet the special needs of such German-Americans as possess a fair reading and speaking knowledge of German, but are deficient in grammatical accuracy. *Four hours a week throughout the year.* Mrs. NEWPORT.

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2L. Second Year German. Especially arranged for students of Latin or Greek, and others willing to do extra work for the sake of more rapid progress. *Throughout the year; Tu., W., Th., F., at* 10. Dr. VEERHUSEN.

2S. Second Year German. For students specializing in science. Identical with course 2, except that easy scientific prose is introduced in part of the second semester. *Throughout the year; Tu., W., Th., F., at* 11. Mr. DEIHL.

2C. Second Year German. For freshmen in the Course in Commerce. Practically identical with course 2. *Throughout the year; Tu., W., Th., F., at* 9. Assistant Professor ROEDDER.

2E. Second Year German. For freshmen in engineering. A regular second year's course, practically identical with course 2. *Four hours a week throughout the year.* Five sections. Dr. KIND, Mr. BRUNS, Dr. MORGAN, Mr. ROLOFF, and Mr. WILD.

2A. Advanced Second Year German. Open to students who enter the University with three years of high school German or its equivalent. *Four hours a week throughout the year.* Three sections. Dr. KIND, Mr. BRUNS, and Mr. DEIHL.

ADVANCED PRACTICE COURSES

Primarily for Undergraduates

3A. Third Year German. Modern and classical prose and verse. Oral and written work. Study of syntax. Open only to freshmen who enter the University with four years of high school German. *Throughout the year; M., Tu., W., Th., at* 12. Dr. MORGAN.

3S. Scientific German. For students specializing in science who have had course 2 or 2S. Rapid reading of scientific prose. *Throughout the year; W., F., at* 9. Assistant Professor STERLING.

3C. For sophomores in the Course in Commerce. Reading, conversation, and composition. *Throughout the year; Tu., Th., at* 11. Dr. HAUSSMANN.

3E. For Sophomores in Engineering. Advanced prose on subjects of technical science. *Half-year course, given in both semesters.* Four sections. *M., W., F., at* 8. Dr. HAUSSMANN and Dr. HICKS.

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4C. For juniors in the Course in Commerce. Reading, conversation, and composition, chiefly on topics of special value to students of commerce. *Throughout the year; Tu., Th., at* 9. Dr. MORGAN.

5C. For seniors in the Course in Commerce. A continuation of the work of 4C. *Throughout the year; Tu., Th., at* 11. Dr. PROKOSCH.

6. Grammar and Composition. Open to students who have had course 2 or an equivalent, but desire more practice in grammar and prose composition. Without special permission, this course can be taken only in connection with some other course in the department. *M., at* 12. Mr. WILD.

7. Elementary Conversation. Class practice, with work at home not to exceed one hour a week. Open on the same conditions as course 6. *One hour credit. Two hours a week throughout the year.* Four sections. Dr. PROKOSCH, Dr. HICKS, Dr. MORGAN, and Mr. BRUNS.

8. Dramatic Reading. Recitation of poems and reading of dramas with divided parts, with special attention to pronunciation and expression. Open, after consultation, to students of fair advancement in German. Not open to freshmen. *One hour credit. M., W., at* 11. Assistant Professor GOODNIGHT.

9. Critical German Prose. Rapid reading in history, biography, criticism, etc. Especially designed for students who wish to read with ease German books on historical, philosophical, and literary topics. Open to students who have had at least course 2 or an equivalent. *Tu., Th., at* 2. Dr. HICKS.

10. Composition and Conversation; with special work in German syntax. Open to students who have had at least four semester hours in advance of course 2. *Two hours a week throughout the year. Four sections.* Dr. VEERHUSEN, Assistant Professor GOODNIGHT, and Mr. ROLOFF.

11. Sight Reading. Rapid translation of literary and critical prose, especially intended for students who need practice in putting German into English. Open on the same conditions as course 9. *One hour credit. Twice a week throughout the year.* Mr. OSWALD.

12. Advanced Practice in Writing and Speaking German. Discussions and essays on topics of German life and literature. Open to advanced students specializing in German. This

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course is decidedly in advance of course 10; but ordinarily students should take only one of the two courses. *Tu., Th., at* 10. Dr. PROKOSCH.

13. Grammar Review. A detailed discussion of theoretical grammar from the standpoint of the high-school teacher. Open to seniors and graduate students. *Two hours a week for one semester.* Assistant Professor EVANS.

14. Teachers' Course. A critical study of the methods of teaching modern foreign languages. Lectures, reports, discussions, and practice teaching. Open to seniors and graduate students. *Two hours a week for one semester. M., W., at* 3. Professor HOHLFELD and Professor VOSS. (Given in 1907-08 by Assistant Professor EVANS.)

The attention of the students in this course is called to course 53, General Phonetics.

Courses 12 and 14 may be counted toward the master's degree by graduate students taking German as their major.

GERMAN LITERATURE

Primarily for Undergraduates

15. Classical and Modern Writers. Selections from eighteenth and nineteenth century authors, and written exercises. For students who have had second-year German. *M., W., F., at* 9. Dr. VEERHUSEN.

16. Classical and Modern Writers. Similar to course 15, but more advanced. Open to students who have had 2A or 3A. Courses 15 and 16 are mutually exclusive. *M., W., F., at* 9. Mr. BRUNS.

To make suitable four or five hour courses, 15 or 16 should be combined with 6, 7, 8, 9, 11, 17, or 20. Course 16 may also be combined with course 10.

17. Modern German Dramatists. Selected dramas of Grillparzer, Hebbel, and other authors, like Ludwig, Sudermann, and Hauptmann. A rapid reading course. *Three hours a week throughout the year.* Dr. KIND.

18. Modern German Novelists. Selected novels of Scheffel, Freytag, Keller, C. F. Meyer, and Sudermann. A rapid reading course. *M., W., F., at* 11. Dr. HAUSSMANN.

20. Schiller. Introductory study of his life, and selected works. *Maria Stuart* or *Braut von Messina, Gedichte,* and *Wallen*

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stein. Two hours a week throughout the year. Three sections. Assistant Professor STERLING and Assistant Professor ROEDDER.

Courses 17 to 20 are primarily intended for students who have had course 2 or its equivalent. Students having had more than four semester hours in advance of course 2 will be required to do additional work to receive full credit.

*21. Modern German Poetry. *First semester:* Lyrics and ballads. *Second semester:* Epic poems, as Scheffel's *Der Trompeter von Säkkingen. M., W., F., at* 12. Assistant Professor STERLING.

22A. Heine. Introduction to the study of his life and poetry. Lyrics, *Harzreise*, and other prose writings. *First semester; three times a week.* Assistant Professor EVANS.

22B. Hebbel. Introduction to the study of his life, poetry, and theory of art. The class will read several dramas and selections from letters and diaries. *Second semester; three times a week.* Assistant Professor EVANS.

23. Goethe. Introductory study of his life, and selections from his works. *Götz* and *Egmont. Tu., Th., at* 9. Given in alternate years. (Omitted in 1908-09.) Professor Voss.

24. Lessing. Introductory study of his life, and selections from his works. *Emilia Galotti, Nathan*, and prose selections. *Tu., Th., at* 9. Alternates with 23. Professor Voss.

26. Lessing, Goethe, and Schiller. An introduction to the classical literature of the eighteenth century. *Laokoon*, or other critical writings of Lessing, Goethe's *Tasso* and selected poems, Schiller's aesthetic writings, or his correspondence with Goethe. *Tu., Th., at* 12. Alternates with 27. (Omitted in 1908-09.) Professor HOHLFELD.

27. Nineteenth Century Drama. An introductory study of the development of the German drama from Kleist to Hauptmann. The class will read representative dramas of the period. *Tu., Th., at* 12. Alternates with 26. Professor HOHLFELD.

*Courses 21 to 27 are primarily intended for juniors specializing in German, but are open to all others who have had at least six unit-hours in advance of course 2.

Without special permission, no student is allowed to count more than two of the courses from 15 to 20, and three year courses, or their equivalent, from 21 to 27.

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For Undergraduates and Graduates

30. Goethe's Faust. Both parts of the poem are discussed and interpreted in class, and this work is supplemented by lectures and collateral reading in Faust literature. Conducted in English. *Throughout the year; Tu., Th., at* 11. Professor HOHLFELD. (Given 1907-08 by Assistant Professor GOODNIGHT.)

31. Introduction to the History of German Literature. English lectures, and private reading of representative works of German literature in English translations. This course does not require a particular knowledge of the language, and is primarily intended for students who do not specialize in German. Not open, without special permission, to students below the junior class. *Throughout the year; Tu., Th., at* 5. Dr. KIND.

33. General History of German Literature. Lectures, readings in Thomas's *Anthology* and Max Müller's *German Classics*, and the systematic study of some standard history of German Literature. *Throughout the year; Tu., Th., at* 11. (Omitted in 1908-09.) Professor HOHLFELD. (Given 1907-08 by Dr. KIND.)

34. Lyric Poetry of the Nineteenth Century. Lectures, collateral reading, and exercises in literary criticism. Especial attention will be given to the study of rhythm and meter. *Throughout the year; twice a week.* Mr. BRUNS.

36. Popular German Literature. *Volkslied, Märchenliteratur*, and *Volksbücher (first semester);* modern dialect literature *(second semester). Throughout the year; Tu., Th., at* 10. Alternates with 37. Assistant Professor ROEDDER.

37. Schiller. Study and discussion of his dramas, dramatic fragments, philosophical writings, and correspondence. Lectures, collateral reading in critical literature, and reports. *Throughout the year; twice a week.* (Omitted in 1908-09.) Assistant Professor ROEDDER.

38. Shakespeare in Germany. A study of the more important translations of Shakespeare into German, and of the influence of Shakespeare on German literature, especially in the 17th and 18th centuries. *One semester; twice a week.* (Omitted in 1908-09.) Assistant Professor EVANS.

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For Graduates

40. Herder. A critical study of his life and works, with special reference to his influence on the Storm and Stress movement and on the Romantic School. Lectures, collateral readings, and reports. *First semester; M.*, 2 *to* 4. (Omitted in 1908-09.) Dr. HAUSSMANN.

41. The Romantic School in Germany. The course has for its special aim a systematic study of the literary, philosophic, and cultural tendencies of the early romantic movement. The principal writers studied will be the two Schlegels, Tieck, Novalis, Wackenroder, Fichte, and Schelling. Lectures, collateral readings, and reports. *Second semester; M.*, 2 *to* 4. (Omitted in 1908-09.) Dr. HAUSSMANN.

42. The Literary Relations of England and Germany in the 18th Century. The course deals particularly with the influence on German literature of the Spectator, Milton, Young, Ossian, Shakespeare, and Sterne. Lectures, and papers on special topics. *Throughout the year; twice a week.* Dr. KIND.

43. Lessing. A critical study of his life and works with special reference to his attitude towards English literature. Lectures, collateral readings, and reports. *Second semester; twice a week.* Dr. HAERTEL.

44. History of Middle High German Literature. This course deals with the evolution of the literary movements during the period from the twelfth to the end of the fifteenth century. Special attention is given to the corresponding tendencies in politics, social life, religion, and art, as also to the later reappearance of medieval ideals in modern literature. Open only to students who have completed course 52 or its equivalent. *Throughout the year; Th.*, 4 *to* 6. (Omitted in 1908-09.) Assistant Professor EVANS.

45. The Novel of the Nineteenth Century. In addition to the study of the literary phenomena as such, special attention will be given in this course to the general tendencies of modern life and thought, in so far as they have found expression in the novel. Lectures, collateral readings, and papers on special topics. *Throughout the year; twice a week.* Assistant Professor GOODNIGHT.

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46. History of the German Drama. The course traces the development of the German drama up to the time of Lessing. The ground covered includes the liturgical drama, the *Fastnachtspiel*, the *Schuldrama*, the English influence of the seventeenth, and the French influence of the first half of the eighteenth century. *Throughout the year; Th.*, 4 *to* 6. Alternates with 44. Assistant Professor EVANS.

47. Pro-seminary in German Literature. The object of this course is, through the assignment of definite tasks of limited compass, to prepare graduate students for the more advanced work of the seminary proper. The work will be based in alternate years on the following subjects: (a) The literature of the seventeenth and of the first half of the eighteenth century. (b) The classical period of the second half of the eighteenth century. In both instances, special attention will be given to tracing the development of literary style, meter, and poetic theory. *Throughout the year; M., W., at* 9. Professor HOHLFELD.

48. Seminary in German Literature. The aim of the seminary is to train graduate students in the scientific methods of the historical and critical study of literature. The fields from which subjects are chosen for investigation, form a cycle of at least three years: (a) Interrelations of English and German literature during the last three centuries. (b) Goethe *(first semester)* and Goethe's Faust *(second semester)*. Given in 1906-07. (c) The German drama since the middle of the eighteenth century. *Throughout the year; W.*, 4 *to* 6. Professor HOHLFELD.

For the work of the German Journal Club, see the announcement of the Graduate School.

GERMAN PHILOLOGY

For Undergraduates and Graduates

50. Historical Survey of German, with special reference to Modern German grammar. German in its relation to the other members of the Germanic and Indo-germanic family of languages. Lectures and reading of selected texts to illustrate the historical development of the language, especially during the Modern High German period. *First semester; M., W., at* 11. Professor Voss.

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51. Middle High German. Introductory course. Lectures on the German folk epics and German heroic legends. Study of either the *Nibelungenlied* or *Kudrun*. *Second semester; M., W., at* 11. Professor Voss.

Courses 50 and 51 are required of students who expect to teach German as their principal subject.

52. Advanced Middle High German. Studies in the language and literature of the twelfth and thirteenth centuries. Lectures and critical study of texts. *Tu., Th., at* 10. Professor Voss.

53. General Phonetics. A study of the nature and production of speech sounds in the most important Indo-European languages. Open to graduate and properly prepared undergraduate students from all the language departments. *First semester; twice a week.* (Omitted in 1908-09.) Dr. Prokosch.

54. Gothic Grammar. Readings from the Gospels. *First semester; twice a week.* Assistant Professor Roedder.

55. Old High German, with special reference to German life and culture. Braune's *Althochdeutsche Grammatik* and readings from Braune's *Althochdeutsches Lesebuch*. *Second semester; twice a week.* Assistant Professor Roedder.

57. Introduction to the Study of *Volkskunde*. Lectures and collateral reading. *First semester; once a week.* In alternate years. Assistant Professor Roedder.

58. Old Saxon, with special reference to Germanic life and culture. Holthausen's *Altsächsisches Elementarbuch* and extracts from the *Heliand*, ed. Behaghel. *First semester; twice a week.* In alternate years. (Omitted in 1907-08.) Assistant Professor Roedder.

59. Germanic Mythology and Heroic Legends. Lectures and collateral reading. *Second semester; twice a week.* In alternate years. (Omitted in 1907-08.) Assistant Professor Roedder.

Primarily for Graduates

60. Classical German Philological Literature. Introduction to the history of German philology and to the study of philological methods of research and investigation. *W., at* 9. Professor Voss.

61. Pre-Germanic Grammar, First Part (Phonology). A study of the historical development of sounds as apparent in Gothic, Old Norse; Old English, Old Saxon, and Old High German.

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This course is a natural supplement to any work in Germanic philology, and at the same time a continuation of course 53. *Second semester; twice a week.* (Omitted in 1908-09.) Dr. PROKOSCH.

62. Modern German Grammar. A thorough and practical study of the language as spoken and written today, with lectures on the history of the Modern High German literary language. Alternates with course 63. *M., W., at* 10. Professor VOSS.

63. Early Modern High German. Studies in the language and literature of the fifteenth and sixteenth centuries. Lectures and critical study of texts. Alternates with course 62. (Omitted in 1907-08.) *M., W., at* 10. Professor VOSS.

64. Pro-seminary in German Philology. For 1908-09: Old High German Texts *(first semester);* Old Saxon Texts *(second semester).* For 1907-08: Studies in the Development of German Prose Style. *S.,* 8 *to* 9. Assistant Professor ROEDDER.

65. Philological Seminary. The work of the seminary varies. While special attention is given to the classical writers of the Middle High German period, the other periods also, especially the transition period from Old to Middle High German, and from Middle to Modern High German, will be studied. Hartmann von Aue, Gottfried von Strassburg, Wolfram von Eschenbach, *Deutsche Gedichte des XI und XII Jahrhunderts*, Reinke de Vos, Meier Helmbrecht, Sebastian Brant, Thomas Murner, Hutten, Luther, Fischart, and Hans Sachs. *Throughout the year; Tu.,* 4 *to* 6. Professor VOSS.

SLAVIC AND CELTIC LANGUAGES

DR. PROKOSCH.

For Undergraduates and Graduates

1. Elementary Russian. Boyer-Speranski-Harper's Russian Reader and Motti's Russian Elementary Grammar will be used. *First semester; twice a week.* (Given in 1907-08 and every third year thereafter.) Dr. PROKOSCH.

2. Advanced Russian. Reading of novels by Turgeneff and Lermontoff's *Demon.* *Second semester; twice a week.* (Given as above.) Dr. PROKOSCH.

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For Graduates

5. Old Bulgarian, from an historical point of view. Reading of the gospels. *First semester; twice a week.* (Given in 1906-07 and every third year thereafter.) Dr. PROKOSCH.
6. Lithuanian. Comparative grammar and reading of Lithuanian fairy tales. *Second semester; twice a week.* (Given as above.) Dr. PROKOSCH.
9. Old and Middle Irish. An introductory study to Celtic philology, with readings from *Thesaurus Palaeohibernicus* and Old Irish epics. *First semester; twice a week.* (Given in 1908-09 and every third year thereafter.) Dr. PROKOSCH.
10. Welsh. A study of Welsh grammar and reading selections from the Mabinogion. *Second semester; twice a week.* (Given as above.) Dr. PROKOSCH.

ENGLISH

PROFESSORS CUNLIFFE, FREEMAN, HUBBARD; ASSOCIATE PROFESSOR LATHROP; ASSISTANT PROFESSORS BEATY, BLEYER, CAIRNS, DICKINSON, DODGE, PYRE, YOUNG; MISS BERKELEY, MR. COOK, DR. LEONARD, MR. NEIDIG, MR. NORTHROP, MR. ROE, AND DR. WOOLLEY.

The courses of the Department are intended to serve five main purposes: (1) to train students in the use of English as a means of expression and communication for the ordinary demands of social, commercial and professional life; (2) to continue that training to suit the special needs of those who intend to take up journalistic or literary work; (3) to develop the literary sympathy and appreciation and to extend the knowledge of those who find in English and American literature the readiest means of obtaining the advantages of a liberal education; (4) to prepare teachers of English for school and college work; (5) to fit students for and assist them in scholarly investigation. Most of the courses will be found to meet all these needs, directly or indirectly, but some are especially directed to one or two in particular. Every student will be encouraged to select the courses most suited to his or her own needs, but certain courses are prescribed as necessary for due equipment in particular lines of work.

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Undergraduate Courses

All students in the colleges of Letters and Science, Engineering, and Agriculture are required to take Freshman English.

The General Survey is regarded as a necessary preliminary to the other literature courses, and should therefore be taken in the Sophomore year by those who think of making English their major study in the junior or senior years; this course (30) is also recommended for those who desire a general knowledge of English literature, but are unable to carry their study of the subject further.

Students taking English as an elective outside of the major study are advised to select courses mainly from the undergraduate group. Those who make English their major study, after providing for the required courses, may choose at will from this or the following group (for undergraduates and graduates); and duly qualified seniors are admitted to the courses primarily for graduates at the discretion of the professor in charge of each course.

English as a Major Study

Students intending to choose English as their major study are strongly recommended to take General Survey (30) in their sophomore year.

At the beginning of their junior year, they should consult the head of the department, who will assign them to an adviser for help in the choice of courses and general direction of their studies. They are required to take forty hours, and are permitted to take forty-six hours, in the department, including the thesis (four unit-hours) and courses 1 and 30. No courses in public speaking except 5 and 11 may be taken as part of the major work in English.

Students who are not candidates for the teacher's certificate are free to choose any courses they wish after satisfying the requirements of Freshman English and General Survey.

For Teachers

Candidates for the teacher's certificate choosing English as their major are required to take forty hours, and are permitted to take forty-six hours, in the department, including the thesis and courses 1, 20, 30, 36 (or 36a), 40 and 50.

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Students preparing to teach English as a second subject in high schools are required to take 1, 30, 40, and 50.

Before entering the course on the Teaching of English (50), students should review English grammar and the principles of rhetoric and make themselves familiar with the following selections: Arnold's *Sohrab and Rustum;* Bunyan's *The Pilgrim's Progress*, Part I; Burroughs' *Birds and Bees, Sharp Eyes, A Bunch of Herbs*, etc.; Burke's *Conciliation With America;* Carlyle's *Essay on Burns;* Coleridge's *Ancient Mariner;* Cooper's *Last of the Mohicans;* Dickens' *Christmas Carol;* Franklin's *Autobiography;* Mrs. Gaskell's *Cranford;* George Eliot's *Silas Marner;* Goldsmith's *Vicar of Wakefield;* Hawthorne's *The House of Seven Gables, Twice Told Tales;* Irving's *Alhambra, Sketch Book;* Lowell's *Vision of Sir Launfal;* Macaulay's *Lord Clive, Life of Johnson;* Poe's *Gold Bug and other Short Stories;* Scott's *Ivanhoe;* Shakspere's *Julius Caesar, Macbeth, The Merchant of Venice;* Thoreau's *Succession of Forest Trees;* Tennyson's *Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur;* Stevenson's *Treasure Island;* Warner's *A-Hunting of the Deer;* Webster's *First Bunker Hill Oration;* Washington's *Farewell Address.*

Preparation for Journalism

As the study of English is an important part of training for journalism, students with this aim in view may find it to their advantage to take English as their major. For students taking English as a major in preparation for journalism the only required courses are 1 and 30. Other courses considered advantageous for journalistic work are those in composition (1, 2, 2a, 6, 7); Newspaper Writing (19, 19a); American literature (40, 47), Nineteenth Century literature (34,35), English drama (36, 36a, 52), and Modern English Prose (54). The technical instruction given in the courses in newspaper writing includes (a) theory and practice of journalistic methods, (b) history and development of the American press, and (c) organization and management of a modern newspaper; together with a series of special lectures on various phases of journalistic work, given by newspaper men in active service. For detailed information as to the courses in preparation for journalism see Index under Journalism and a special bulletin for 1908-09 entitled Courses Preparatory to Journalism.

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Library Work

English literature is an important part of the sound general education which forms the best foundation for success in library work, and its relation to the more specific needs of the profession is obvious. Students who take the joint course arranged at the University and the State Library School may therefore find it to their advantage to choose English as their major study. Of the twenty hours of library work for which credit is given by the University, ten may be counted towards an English major, if the candidate so desires, reducing the minimum departmental requirement to thirty hours. In addition to courses 1 and 30, which are required of all, library students are recommended to select courses of a more general character from the group primarily for undergraduates, especially 34, 35, 36, 52, 39, and 40. For detailed information in regard to preparation for library work, see Index under Library Training and a special bulletin for 1908-09 entitled Courses in Library Training.

RHETORIC AND COMPOSITION

For Undergraduates

1. Freshman English. English prose style. Composition. The elements of effective writing in prose, based upon direct study of selected authors, with training in composition. *Three hours a week throughout the year. Twenty-eight sections. For hours and rooms see time table of required studies.* Required of all freshmen in the colleges of Letters and Science, Agriculture, and Engineering. Professor HUBBARD, Associate Professor LATHROP, Assistant Professors BEATTY, CAIRNS, DICKINSON, DODGE, Miss BERKELEY, Mr. COOK, Dr. LEONARD, Mr. NEIDIG, Mr. ROE, Dr. WOOLLEY.
2. Sophomore Composition. Elective for students who have finished the required English for the freshman year. *Throughout the year; Tu., Th., at* 8 *and* 11. Assistant Professor DICKINSON, and Miss BERKELEY.

2a. Sophomore Composition. Exposition. This course is designed to meet the requirements of those students who, while specializing in technical or scientific studies, desire training in composition to aid in the writing of theses and special reports. The work is carried on by means of lectures, class exercises, and frequent conferences. *Through-*

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out the year; Tu., Th., at 12. Assistant Professor DICKINSON.

6. Advanced Composition. Elective for juniors and seniors, and for sophomores who have done very good work in course 1. *Throughout the year; Tu., Th., at* 11. *Three unit-hours.* Assistant Professor DODGE.

19. Newspaper Writing. Practice in newspaper reporting, correspondence, and other details of a reporter's work; and instruction in methods of practical journalism, with special lectures by newspaper men, on various phases of journalistic work. Open only to students who have had considerable practice in composition. *Throughout the year; Tu., Th., at* 10. Assistant Professor BLEYER.

19a. Newspaper Writing. The course includes practice in editorial work, preparation of special articles, and other forms of journalistic writing; the history and development of the American press; and a study of the organization and management of the modern newspaper, with special lectures by newspaper editors. Open to those who have taken English 19, and to others, by special permission. *Throughout the year; M., W., at* 10. Assistant Professor BLEYER.

ENGLISH LANGUAGE

Primarily for Undergraduates

20. Anglo-Saxon and Middle English. This course is designed to furnish a basis for the more advanced study of English philology, and to give an introduction to the history of the English language. A considerable amount of Anglo-Saxon prose and Middle English is read, the historical development of the language is set forth, and the general principles of linguistic science are illustrated. The work of the first semester may be elected without the work of the second semester. First semester, Anglo-Saxon; second semester, Middle English. *Throughout the year; M., W., F., at* 9. Professor HUBBARD.

25. English Language. A study of the development of the English language with special reference to the form and meaning of words; designed to meet the needs of those preparing to teach English, as well as of those interested in linguistics. *First semester; M., W., at* 12. Assistant Professor BLEYER.

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Primarily for Graduates

22. Beowulf. The whole poem is read critically; its relation to the literature of other Germanic languages is considered. As far as possible the course is made to serve as an introduction to the study of old Germanic life. Open to seniors. *First semester; M., W., F., at* 8. Professor HUBBARD.

21. Anglo-Saxon Poetry. A continuation of course 22. Especial attention is given to the lyric and epic poems that are least affected by Christianity. *Second semester; M., W., F., at* 8. Professor HUBBARD.

26. Principles of Etymology and Semasiology. A detailed study of the development of the meaning of words as illustrated by English and other languages. *Second semester; M., W., at* 12. Assistant Professor BLEYER.

24. English Philology Seminary. Critical study of texts; historical grammar; dialects. The work is varied from year to year. A course in Anglo-Saxon grammar with special reference to Germanic relations is given at least once in three years; this is designed to meet the needs of students of German as well as students of English. In other years courses are given in which the critical study of some Anglo-Saxon or Middle English Text is pursued. The subject for 1908-09 is Anglo-Saxon Grammar. *Two hours a week throughout the year.* Professor HUBBARD.

ENGLISH LITERATURE

Primarily for Undergraduates

30. General Survey of English Literature. This course consists of two parts: (1) lectures on the history of English literature from the earliest times to the middle of the nineteenth century; and (2) a careful study in small tutorial groups of the works of representative authors of each period. As an introduction to the study of English literature, this course is prerequisite to all other courses in English. It is required of sophomores taking English as their major, and is recommended to students desiring a single course in English literature.

Section 1, *M., W., F., at* 8. Assistant Professor DICKINSON.
Section 2, *M., W., F., at* 9. Assistant Professor PYRE.
Section 3, *M., W., F., at* 10. Assistant Professor YOUNG.
Section 4, *M., W., F., at* 12. ———

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Particulars as to the assignment of students to tutorial groups for reading and study in course 30 will be found in the English Department circular.

34. The Romantic Movement. Lectures and collateral reading upon the earlier phases of the movement from Thomson to Blake are followed by particular study of representative poetical works of Coleridge, Wordsworth, Byron, Shelley, and Keats. *First semester; M., W., F., at* 10. Assistant Professor PYRE.

35. The Victorian Era. This course is a continuation of 34, and is similar in method, with a somewhat larger share of attention to the prose of the period. The works for particular study are those of Carlyle, Ruskin, Newman, Tennyson, Browning, Rossetti, Arnold, and Morris. *Second semester; M., W., F., at* 10. Assistant Professor PYRE.

36. The Drama. Shakspere. A part of the first semester is devoted to the history of the development of the drama, the remainder of the year to Shakspere. All the thirty-seven plays are read, while more specific attention is given to a part of his work by a detailed study of certain plays representative of the different periods of his dramatic career. *Throughout the year; M., W., F., at* 11. Professor FREEMAN.

36a. Shakspere. A short review of the political, social, and literary conditions of the Elizabethan age is followed by a careful study of the following plays: A Midsummer Night's Dream, Romeo and Juliet, The Merchant of Venice, Henry V, As You Like It, Hamlet, Lear, Macbeth, The Tempest. *Throughout the year; M., W., F., at* 11. Professor CUNLIFFE.

52. Modern Drama. A survey of English dramatic literature from the Restoration to the present time. Lectures, collateral reading, and analysis of plays. *Throughout the year; Tu., Th., at* 11. Assistant Professor PYRE.

37. Epic Poetry. Lectures on the characteristics and varieties of epic poetry, and on the principal world epics. Collateral reading and papers. The members of the class are expected to obtain and preserve copies of the principal world-famous national poems (the foreign epics in translation). Open to juniors and seniors. *Throughout the year; Tu., Th., at* 10. Alternates with course 38. (Omitted in 1908-09.) Professor FREEMAN.

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38. English Lyric Poetry. A study of the best lyrical poems from the time of Wyatt and Surrey to that of Tennyson. *Throughout the year; M., W., F., at* 10. Alternates with course 37. (Given in 1908-09.) Professor FREEMAN.

39. The Novel. During the first semester the English novel of the eighteenth century is the subject of the course. Attention is given to the influence of Spanish and French upon English fiction and of English upon French and German fiction. Novels by the most important English authors of the eighteenth century are read, and the attempt is made to determine the contribution of each writer to his art. Thackeray, and George Eliot are studied. The first semester may be taken without the second, but not the second without being preceded by the first. *Throughout the year; Tu., Th., at* 10. Associate Professor LATHROP.

40. American Literature. The aim of this course is to give a general survey of literary writings in America from the earliest times, keeping in mind their relations to continental and to English literature and to national development. One hour a week will be devoted to lectures; during the second hour the class will meet in sections for the study of representative writings. *Throughout the year; Tu., Th., at* 9 *and at* 10. Assistant Professor CAIRNS.

50. The Teaching of English. This course includes the presentation of aims, methods and organization of high school work in English; a consideration of the principles of composition and of the forms of discourse, with special reference to teaching composition in secondary schools; the discussion of practical means of solving the problems of teaching English under present conditions in both large and small high schools; practice work in the correction of themes; a study of the classics used in high school reading; with opportunity for observation of teaching in high school. Required of all students who are preparing to teach English. *Throughout the year; Tu., Th., at* 12. Mr. BASSETT and Assistant Professor BLEYER.

54. Modern English Prose. A study of representative modern prose writers, with special reference to the characteristics of style. This course may be taken to advantage in connection with course 2, 6, 19 or 19a. *Throughout the year: Tu., Th., at* 11. Assistant Professor BLEYER.

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For Undergraduates and Graduates

31. Chaucer. After an introductory study of Chaucer's language and grammar, as many of the Canterbury Tales are read as time allows. The Parliament of Foules and the Prologue to the Legend of Good Women are also read. *Second semester; M., W., F., at* 12. Professor HUBBARD.

42. Versification. The various problems of metrical science are discussed and the student is presented with a working theory, after which the course takes up the history of English verse forms and the analysis of particular compositions. *Second semester, Th., 2 to* 4. (Omitted in 1908-09.) Assistant Professor PYRE.

43. Tennyson. The development of Tennyson as a literary artist is reviewed, as seen in his vocabulary, verse-form, and subject-matter. The poet is also considered as an exponent of the scientific and religious thought of his time. In 1908-09 the topics for special study will be Tennyson's use of the idyl and the Arthurian cycle. *Throughout the year; Tu., Th., at* 10. Assistant Professor BEATTY.

45. Browning. This course aims at explaining Browning's relation to the poetic development of the nineteenth century, his characteristic methods, his outlook on the life and thought of his time, and his view of the art of poetry. *Second semester; Tu., Th., at* 11. (Omitted in 1908-09.) Professor CUNLIFFE.

46. Literary Criticism. (Pro-seminary.) The chief theories of the origin and development of literary expression are discussed. The comparative method is illustrated by a study of the English popular ballad and tale; other theories (historical and aesthetic) by study of critical masterpieces. To each member of the class some problems or group of problems will be assigned for special study. *Throughout the year; Tu., Th., at* 9. Assistant Professor BEATTY.

47. Significant Movements in American Literature. In this course different aspects of the development of American literature are taken up for detailed consideration. The subject for 1907-08 was the development of the short story in America. The subject for the first semester of 1908-09 will be Poe; for the second semester Emerson and the lesser New England Transcendentalists. The relation of these authors to the intellectual movements of the nine-

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teenth century will be considered in some detail, and some of their most important works will be studied intensively. The course is open to graduates and to undergraduates who have completed course 40 or its equivalent. *W.*, 2 *to* 4. Two unit-hours credit. Assistant Professor CAIRNS.

Primarily for Graduates

51. Predecessors of Shakspere. History of the development of the English drama up to Shakspere, with special consideration of the elements contributed by the classical drama, the miracles and moral plays, foreign influences, and the work of Lyly, Marlowe, Greene, and Kyd. *Throughout the year; Tu., Th., at* 10. (Omitted in 1908-09.) Professor CUNLIFFE.

53. Shaksperean Criticism. History of Shaksperean criticism, textual and aesthetic, from its beginnings to the present time. Students will be directed to make themselves acquainted with the methods and results of modern scholarship. *First semester; Tu., Th., at* 9. (Omitted in 1908-09.) Professor CUNLIFFE.

55. Shakspere's Later Contemporaries. The English Drama from Ben Jonson to The Closing of the Theatres. The dramatic history of this period will be studied, mainly through the examination of typical plays with reference to their source and aim, to social and theatrical conditions, and to the changed circumstances of dramatic authorship. *Throughout the year. Tu., Th., at* 12. Assistant Professor PYRE.

56. Sixteenth Century Prose. A survey of the chief prose writers of the period and their chief works, with some attention to intellectual and social conditions and to varieties of prose style. *First semester; Tu., Th., at* 9. Assistant Professor DODGE.

57. Milton. Students will be expected to read all of Milton's poetry and some of his important works in prose. The course is designed to give them as thorough an acquaintance as possible with his work as a whole. *Second semester; Tu., Th., at* 9. Assistant Professor DODGE.

58. English Poetry from Dryden to Cowper. *First semester; two hours.* Alternates with course 56. (Omitted in 1908-09.) Associate Professor LATHROP.

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59. English Prose from Dryden to Burke. *Second semester; two hours.* Alternates with course 57. (Omitted in 1908-09.) Associate Professor LATHROP.

44. English Literature Seminary. The subject varies from year to year. The subject for 1907-08 was the Elizabethan Stage; for 1906-07, the Romantic Movement; for 1904-05, Dryden. The subject for 1908-09 will be Elizabethan Non-Dramatic Poetry. *Throughout the year; Tu.*, 4-6. Professors CUNLIFFE, FREEMAN; and Assistant Professor DODGE.

INDO-EUROPEAN COMPARATIVE PHILOLOGY

1. Elements of Comparative Philology. An introductory course on the structure and development of the Indo-European languages and their scientific study, for graduate and properly prepared undergraduate students of all language departments. *First semester; twice a week.* (Given in 1908-09 and every second year thereafter.) Dr. PROKOSCH.

2. General Phonetics. A study of the nature and production of speech sounds in the most important Indo-European languages. Open to advanced students from all the language departments. *First semester; twice a week.* (Given in 1907-08 and every second year thereafter.) Dr. PROKOSCH.

3. Elementary Sanskrit. *Throughout the year; M., W., at* 10. Associate Professor LAIRD.

4. Advanced Sanskrit. Selections from the Rig-Veda. *Throughout the year; W., at* 11. Associate Professor LAIRD.

PUBLIC SPEAKING

ASSISTANT PROFESSOR LYMAN, MR. JOHNSTONE, MR. MATHEWS.

The courses in public speaking are designed to give preparation in two general lines of work:—in elocution, interpretative reading, and dramatic presentation; and in the composition and delivery of public addresses. The courses are so arranged as to make possible systematic and progressive study in either branch of public speaking during the sophomore, junior, and senior years. In composition, the elementary course, 5, should precede

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the specialized courses, 3 and 11b. Course 12 in elocution forms a desirable part of the preparation for all advanced work in public speaking.

The University of Wisconsin participates in several inter-collegiate contests in oratory and debate. For these contests, the courses in public speaking are designed to give preparation. Men desiring to make inter-collegiate debating teams are advised to consider courses 5, 11a, 11b, 13 and 8. Men desiring to enter oratorical contests should consider courses 5, 3, 13. In addition, the University, through its dramatic societies, presents several plays. The department also conducts public recitals. Students who are interested in dramatic presentation, or who wish to become public readers or teachers of English literature should consider courses 12, 14, 16, 17 and 18.

Two of the courses in public speaking, 5 and 11, may be counted toward the English major. Not more than ten hours of public speaking in addition to course 12 can be counted toward the bachelor's degree.

COMPOSITION COURSES

Primarily for Undergraduates

5. The Composition of Public Addresses. This course deals with the composition of the most important kinds of public addresses, including the argument, the eulogy, the commemorative addresses, and other forms. The work consists of lectures, a study of text books, analysis of master-pieces, practice in the composition of the various forms, frequent class room exercises, five long themes during the year, and personal consultation. This course is fundamental in public speaking, and is recommended to sophomores who desire to become proficient speakers. *Throughout the year; M., W., F., at* 12. Assistant Professor LYMAN and Mr. MATHEWS.

3. Oratorical Themes. This course is intended as special preparation for those who wish to enter oratorical work. It is designed primarily for juniors. The work consists of lectures on the theory of oratory, the preparation of original orations, class room exercises, personal conferences and criticism. At least three orations will be written during the semester. *First semester; Tu., Th., at* 12. (Omitted in 1908-09.) Assistant Professor LYMAN.

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11a. Argumentative Themes. This course, followed by 11b, is intended as special preparation for argumentation and debate. Training in analysis, brief-drawing, evidence, refutation; study of the principles of conviction, persuasion and rhetorical presentation. Three written arguments with short class themes. *Second semester; Tu., Th., at* 10. Assistant Professor LYMAN.

COURSES INCLUDING DELIVERY

Primarily for Undergraduates

1. Elementary Public Speaking. For freshmen only. Designed primarily for men in literary societies and preliminary to all advanced courses. The purpose of this course is to promote effective delivery by starting correct habits of breathing, vocalization, ease of presence, and of movement. Short selections will be studied, practiced, and delivered. The main emphasis of the course will be drill in class room, little work outside being required. The course is limited in number. The consent of instructors is required. *No University credit given. Second semester; twice a week. Hours to be arranged.* Assistant Professor LYMAN and Mr. MATHEWS.

13. Oratorical Delivery. Intended to follow course 3. Study of the principles of oral expression for the cultivation of a natural and direct style. Prepares students for participation in college oratory and debating. This course should be preceded by the elementary course, Elocution 12. *Second semester; Tu., Th., at* 11. Mr. MATHEWS.

15. Practical Public Speaking. (Elective in the College of Law). Daily practice in the presentation of the various forms of public address, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Designed for upper classmen and students in the College of Law who have taken no courses in elocution, but who wish some general training in public speaking. *First semester; Tu., Th., at* 10. Assistant Professor LYMAN.

11b. Debating. Practical work in brief-drawing, the collection and handling of evidence, and debating. Each student will prepare three debates under the direction of the instructor, construct briefs, and participate in class room debates. In

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addition each student will speak several times from the floor. Personal consultation with the instructor on thought, composition, and delivery. This course is a critical and practical study of debating. The class is limited in number. The course can be taken only with the consent of the instructor, and is open only to those who have had course 11a or 5. *First semester; hours to be arranged. Two unit-hours credit.* Assistant Professor LYMAN and Mr. MATHEWS.

8. Ex-tempore Speaking. Practice in the rapid preparation of speeches on the topics of the day and in the impromptu delivery of the same. Lectures on the short speech and extempore speaking. *Second semester; Tu., Th., at* 12. Assistant Professor LYMAN.

ELOCUTION

Primarily for Undergraduates

12a. Elementary Elocution. Vocal culture, exercises in breathing, position and gesture. Drill in pronunciation and articulation. Daily practice in vocal expression for the cultivation of finished style in reading and speaking. Delivery of short selections. This course will be divided into sections of twelve to fifteen. *Throughout the year; M., W., F., at* 9 *and* 10; *Tu., Th., S., at* 9. Assistant Professor LYMAN and Mr. JOHNSTONE.

12b. Elementary Elocution. Beginning section in the work of course 12a. *Second semester; hours to be arranged.* Mr. JOHNSTONE.

14. Advanced Elocution. Brief review of 12a. Advanced study in gesture and voice. Pantomime, impersonation, economy in action tending toward mastery of a definite technique, interpretation of standard literature, repertoire. This course is open only to those who have taken 12a or 12b. *Throughout the year; Tu., Th., at* 10. Mr. JOHNSTONE.

16a. Interpretative Reading. To be given in alternate years with course 17. *Katherine and Petruchio, Merchant of Venice,* one modern play, Kipling's verse. *First semester; Tu., Th., at* 11. (Omitted in 1908-09.) Mr. JOHNSTONE.

16b. Interpretative Reading. *Twelfth Night, Macbeth,* Browning's Verse, and one modern play. *Second semester; Tu., Th., at* 11. (Omitted in 1908-09.) Mr. JOHNSTONE.

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17a. Interpretative Reading. *Much Ado about Nothing, King Lear, Faust,* and *Pillars of Society. First semester; Tu., Th., at* 11. (Given in 1908-09.) Mr. JOHNSTONE.

17b. Interpretative Reading. *As You Like It, Hamlet, Blot on the 'Scutcheon,* Bible Dramas. *Second semester; Tu., Th., at* 11. (Given in 1908-09.) Mr. JOHNSTONE.

18. Dramatic Seminary. Intended for those who wish to teach English and Elocution, or who aspire to platform work. Open only to seniors or graduates who have taken the elementary courses in this department. Lectures on platform art. Principles of interpretative reading demonstrated in practice. Criteria for teaching elocution. Conduct of rhetoricals, contests and plays. Repertoire. *Throughout the year; W., at* 4 *to* 6. (Omitted in 1908-09.) Mr. JOHNSTONE.

MATHEMATICS

PROFESSORS SLICHTER, VAN VLECK; ASSISTANT PROFESSORS DOWLING, SKINNER; DR. ALLEN, DR. BIRKHOFF, MR. DUVAL, MR. GRIMES, MR. MARCH, MR. SMITH, DR. UNDERHILL, MR. WOLFF, MR. BARTHOLEMEW.

The courses in Mathematics are divided into three groups, as follows:—

A. Courses 1 to 7 are planned to give a working knowledge of elementary mathematics. All courses are elective except courses 1 and 7, required of students in the Course in Commerce.

Students who elect the minimum amount of mathematics in fulfillment of requirement "c" (see requirements for degree of Bachelor of Arts), may choose six hours from any of the first six courses, provided courses 3 and 4 are not both chosen.

Students electing mathematics with a view of teaching the subject in the high schools, will be expected to complete at least 20 hours of work inclusive of courses 5 and 6, and the courses that necessarily precede them.

It will be advantageous for all students expecting to elect mathematics to present at least one-half a unit of preparatory work in algebra in addition to the two units in mathematics required for entrance.

B. Courses 11 and 22 are designed for students who desire to

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continue mathematical study, and who have completed the requisite courses in group A.

C. Courses 41 to 61 are intended primarily for graduate students.

Major in Mathematics

The requirements for an undergraduate major in mathematics are, in addition to the thesis, 26 semester hours as a minimum, exclusive of courses 1 to 4 and 7. Courses 5, 6, and 12 must be included.

For Undergraduates

1. Algebra. For students presenting one unit of algebra for entrance; prerequisite to all other courses in mathematics except 2. *Three hours a week for one semester.*

First semester:
Section 1, *M.*, *W.*, *F.*, *at* 8. Dr. ALLEN.
Section 2, *M.*, *W.*, *F.*, *at* 9. Mr. DUVAL.
Section 3, *Tu.*, *Th.*, *S.*, *at* 9. Mr. DUVAL.
Section 4, *M.*, *W.*, *F.*, *at* 10. Assistant Professor SKINNER.
Section 5, *Tu.*, *Th.*, *S.*, *at* 10. Dr. BIRKHOFF.
Section 6, *M.*, *W.*, *F.*, *at* 2. Dr. BIRKHOFF.
Section 7, *M.*, *W.*, *F.*, *at* 3. Mr. DUVAL.

FOR STUDENTS IN THE COURSE IN COMMERCE.

Section 8, *Tu.*, *Th.*, *S.*, *at* 8. Dr. BIRKHOFF.
Section 9, *Tu.*, *Th.*, *S.*, *at* 8. Mr. DUVAL.
Section 10, *M.*, *W.*, *F.*, *at* 2. Dr. ALLEN.

Second semester:
Tu., *Th.*, *S.*, *at* 10. Dr. ALLEN.

2. Trigonometry. Plane trigonometry and logarithms; prerequisite to all other courses in mathematics except 1, 3, and 7. *Three hours a week for one semester.*

First semester:
Section 1, *M.*, *W.*, *F.*, *at* 10. Dr. ALLEN.
Section 2, *M.*, *W.*, *F.*, *at* 2. Mr. DUVAL.
Section 3, *M.*, *W.*, *F.*, *at* 2. Dr. BIRKHOFF.

Second semester: Sections and instructors are the same as in sections 1 to 7 in course 1.

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3. Analytic Geometry. Recommended to students presenting one and one-half units of algebra for admission and elective to students who have taken or are taking course 2. *Second semester.*

Section 1, *M.*, *W.*, *F.*, *at* 9. Dr. BIRKHOFF.

Section 2, *M.*, *W.*, *F.*, *at* 10. Dr. ALLEN.

4. Analytic Geometry. Elementary course. *Throughout the year;*

Section 1, *Tu.*, *Th.*, *at* 10. Assistant Professor DOWLING.

Section 2, *Tu.*, *Th.*, *at* 11. Dr. ALLEN.

5. Calculus. Elementary course. Differentiation and integration of functions with the usual geometric and mechanical applications. Students who intend to specialize in mathematics or who desire calculus for applications in physics and science are advised, if possible, to take course 5 in the sophomore year. *Throughout the year. Section* 1, *M.*, *W.*, *F.*, *at* 10. Assistant Professor DOWLING. *Section* 2, *M.*, *W.*, *F.*, *at* 11. Professor VAN VLECK.

6a. Determinants and Theory of Equations. *First semester; Tu.*, *Th.*, *at* 12. Dr. ALLEN.

6b. Analytic Geometry. A continuation of course 3 or 4, devoted especially to elementary analytic geometry of three dimensions. *Second semester; Tu.*, *Th.*, *at* 12. Mr. DUVAL.

7. Commercial Algebra. Required of students in the Course in Commerce. *Second semester; three hours a week*, at hours as in sections 8, 9, and 10 in course 1. Dr. BIRKHOFF, Mr. DUVAL, Dr. ALLEN.

For Undergraduates and Graduates

11. Advanced Calculus. A working course. Partial derivatives, line and multiple integrals, Green's theorem, etc., with their applications to problems in geometry and mechanics. *First semester; M.*, *W.*, *F.*, *at* 9. Assistant Professor SKINNER.

12. Differential Equations, with applications to geometry and mechanics. This course is designed primarily to be a working course for students in mathematics and physics. *Second semester; M.*, *W.*, *F.*, *at* 9. Assistant Professor SKINNER.

13. Theoretical Mechanics. An elementary course in analytical mechanics. This course may be taken by those who have

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had analytic geometry and calculus. *Throughout the year; M., W., F., at* 11. Professor SLICHTER.

15. Projective Geometry. Lectures based upon Reye's *Geometrie der Lage. Throughout the year; Tu., Th., at* 11. Assistant Professor DOWLING.

14. Modern Methods in Analytic Geometry. *First semester; M., W., F., at* 9. Assistant Professor DOWLING.

19. Differential Geometry. The application of the differential calculus to the geometry of twisted curves and surfaces. *Second semester in alternate years; M., W., F., at* 8. Assistant Professor DOWLING.

17. Vector Analysis and Quaternions. An introductory course with applications to important problems in geometry and mechanics. Adapted to the needs of students in physics. *First semester, M., W., F., at* 12. (Omitted in 1908-09.) Assistant Professor SKINNER.

18. Theory of Probabilities. This course is adapted to the needs of students of science and economics. *Second semester; W., F., at* 12. Professor SLICHTER.

20. Theory of Analytic Functions. This is designed to be an introductory course with special attention to the physical and geometrical aspects of the subject. It may be taken by those who have had calculus and an elementary course in differential equations. In alternate years. *Throughout the year; M., W., F., at* 12. (Omitted in 1907-08.) Professor VAN VLECK.

21. Theory of Functions of a Real Variable. In alternate years. *Throughout the year; Tu., Th., at* 11. (Omitted in 1908-09.) Professor VAN VLECK.

22. The Teaching of Mathematics. A course treating of the content of elementary mathematics and of the problems of the teacher of mathematics in the secondary school. Open to seniors, and to juniors upon the approval of the department. *Second semester, Tu., Th., at* 12. Assistant Professor SKINNER.

For Graduates

The following courses are varied from year to year according to the needs of the students, other courses being introduced.

41. Elliptic Functions. Arranged to give a working knowledge

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of the functions of Weierstrass and Jacobi. *Throughout the year; Tu., Th., at* 9. (Omitted in 1908-09.) Assistant Professor DOWLING.

42. Linear Differential Equations. An introduction to the modern theory of linear homogeneous differential equations, with a study of some of the chief functions which they furnish. *Throughout the year; M., W., at* 10; *F., at* 12. (Omitted in 1908-09.) Professor VAN VLECK.

44. Selected Chapters in Higher Geometry. *Throughout the year; Tu., Th., at* 12. (Omitted in 1907-08.) Assistant Professor DOWLING.

46. Groups of Finite Order. A study of the fundamental properties of groups, followed by an examination of a few of the more important groups and their applications to geometry and analysis. In alternate years. *Throughout the year; Tu., Th., S., at* 12. (Omitted in 1908-09.) Assistant Professor SKINNER.

47. Continuous Groups. An exposition of Lie's theory, with application to differential equations, geometry, and complex number systems. *Throughout the year; Tu., Th., S., at* 10. (Omitted in 1908-09.) Assistant Professor SKINNER.

48. Problems in the Theory of Point Sets. Seminary course. *Throughout the year; the hour to be determined.* Professor VAN VLECK.

49. Linear Partial Differential Equations of the Second Order. Seminary course. *Throughout the year; M., W., at* 12. (Omitted in 1908-09.) Professor VAN VLECK.

50. Theoretical Hydrodynamics. The theory of the ordinary motion of fluids is first taken up, and this is followed by a study of theory of waves in liquids. *Throughout the year; Tu., Th., at* 11, *and a third hour to be determined.* (Omitted in 1908-09.) Professor SLICHTER.

51. Theory of Potential and Harmonic Functions, inclusive of a study of Fournier's Series. *Throughout the year; Tu., Th., at* 11 *and a third hour to be determined.* Professor SLICHTER.

60. Invariants and Covariants. The theory is developed with its applications in algebra and geometry. *Throughout the year; Tu., Th., at* 9 *and a third hour to be determined.* Assistant Professor SKINNER.

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61. Theory of Functional Equations. *Throughout the year; Tu., Th., at* 12. Professor VAN VLECK.

MATHEMATICAL CLUB.—For instructors, graduates, and seniors making mathematics their major. The object of the club will be to follow important recent developments in mathematics, whether in periodical literature, memoirs, books, or theses.

CHEMISTRY

EMERITUS PROFESSOR DANIELLS; PROFESSORS KAHLENBERG, KREMERS, LENHER; ASSISTANT PROFESSORS FISCHER, WALTON; DR. HALL, DR. KOELKER, MR. KRAUSKOPF, MR. MCDANIEL, MR. MOTT, MR. TIBBALS; MR. BREWER, MR. DUMEZ, MR. GATES, MR. HILL, MR. JOHNSON, MR. KLEIN, MR. KOSTALEK, MR. SCHULTZ, MR. WILCOX, AND MR. WOLESENSKY.

Primarily for Undergraduates

1. General Chemistry. A general introductory course consisting of three experimental lectures, one recitation and three two-hour periods of laboratory work per week throughout the year. In the first semester the work consists of the chemistry of the non-metals, while the second semester is devoted to the metals and qualitative analysis. *Lectures M., W., F., at* 10. Professor KAHLENBERG; Assistant Professor WALTON, and assistants.
2. General Chemistry for Freshmen in the College of Engineering. Two experimental lectures and two two-hour laboratory periods per week throughout the year. *Lectures Tu., Th., at* 10. Professor KAHLENBERG, Assistant Professor WALTON, and assistants.
3. General Chemistry for Students in Pharmacy. Three experimental lectures, two recitations and twelve hours of laboratory work per week throughout the year. The first semester is devoted to the chemistry of the non-metals and to inorganic preparations, while in the second semester the work consists of qualitative and quantitative analysis. *Lectures M., W., F., at* 10. Professor KAHLENBERG; Assistant Professor WALTON and Mr. DUMEZ.

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4. Thesis. Work for the baccalaureate thesis may be elected in any branch of chemistry in which the student has sufficient preparation. Not later than the beginning of the senior year the work should be arranged with the professor under whom it has been elected. *Throughout the year. Credit two unit-hours per semester.*

5. Course for Teachers. A course considering both the matter to be presented and the methods of teaching to be adopted in a high school course of chemistry. The prerequisites for the course are course 1, the first semester of course 20, and five unit-hours work in course 11; the latter may be taken during the same semester as this course. Two unit-hours credit toward the University teachers' certificate will be allowed students who have completed this course. *Two lectures or recitations per week during the second semester.* Assistant Professor WALTON.

6. Advanced Inorganic Chemistry. Required of students in Pharmacy. Course 3 is a prerequisite. *Full study during the first semester. Lectures and recitations, Tu., Th., F., at* 10. Professor KREMERS and Mr. SCHULZ.

10. Qualitative Analysis. Laboratory course accompanied by weekly lectures and recitations. *Given only in the first semester. Required of sophomores in electrical, electrochemical and chemical engineering courses.* Professor LENHER; Dr. HALL, and Mr. MOTT.

11. Quantitative Analysis. Introductory laboratory course accompanied by weekly lectures. *Throughout the year.* Professor LENHER; Dr. HALL, and Mr. MOTT.

18. Alkaloid Assay. One hour required of students in the pharmacy course during second semester. Additional work may be elected upon consultation. Assistant Professor FISCHER.

20. Organic Chemistry. Lectures and Laboratory work. *Full study throughout the year.* In the first semester the work will be chiefly on the aliphatic, and in the second semester on the aromatic compounds. *Lectures. Tu., Th., at* 8, *and six hours laboratory work per week.* Dr. KOELKER.

27. Advanced Organic Chemistry. Required of students in Pharmacy. *Full study during the second semester. Tu., Th., F., at* 10. Professor KREMERS and Mr. SCHULZ.

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40. Plant Chemistry. A three hour study supplementary to Pharmacognosy (Botany 22). *Recitation, M., at* 10. Professor KREMERS.

50. Assaying. A course in practical assaying. *Second semester; hours to be arranged.* Professor LENHER and Mr. TIBBALS.

For Undergraduates and Graduates

7. History of Chemistry. A general survey of the history of the development of modern chemistry. *Two lectures or recitations per week during the first semester.* Professor KREMERS.

12. Quantitative Analysis. An advanced laboratory course, being a continuation of course 11 which must precede it. Professor LENHER.

13. Gas Analysis. A laboratory course in practical gas analysis. *First semester.* Dr. HALL.

14. Water Analysis. A laboratory course in the analysis of water and sewage. *First semester.* Dr. HALL.

15. Electrochemical Analysis. A study of the application of the electric current to chemical analysis. *First semester.* Dr. HALL.

16. Industrial Analysis. A laboratory course in the proximate analysis of commercial products. *Second semester.* Dr. HALL.

17. Chemical Preparations. Laboratory course in the preparation of typical inorganic compounds. *At least two periods a week.* Professor LENHER.

19. Proximate Organic Analysis. A course in the proximate analysis of various important commercial and technical organic products. *Three unit-hours study for the first semester.* Assistant Professor FISCHER.

21. Preparation of Organic Compounds. This course may be taken as a continuation of course 20. The work will consist of the preparation of typical compounds of a more advanced nature. Dr. KOELKER.

23. Seminary in Organic Chemistry. Advanced students meet weekly to report on assigned topics relating to researches in organic chemistry. Dr. KOELKER.

24. Advanced Organic Chemistry. One lecture a week throughout the year on selected topics. In 1908-09 the subjects will

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be selected fram the aliphatic and aromatic series. Dr. KOELKER.

28. Chemistry of Alkaloids. General survey course of the chemistry of alkaloids. *One lecture a week during the second semester.* Assistant Professor FISCHER.

29. Chemistry of the Volatile Oils, including their botanical relation and assay. *Work arranged upon consultation with the instructor.* Professor KREMERS.

30. Physical Chemistry. Lectures and recitations supplemented by laboratory exercises in physico-chemical measurements. Must be preceded by chemistry 1. *Full study throughout the year. Lectures and recitations. Tu., Th., at* 8. Professor KAHLENBERG and assistant.

31. Electrochemistry. Lectures and recitations twice a week. Laboratory work in electrochemical measurements supplements the lectures, and with them makes a full study. *First semester; lectures: W., F., at* 8; *laboratory work throughout the year.* Professor KAHLENBERG and assistant.

32. Thermal Chemistry. *Second semester; lectures: M., at* 8; *and one three-hour laboratory period a week.* Professor KAHLENBERG.

41. Plant Chemistry. Supplementary to plant physiology. *Three to five units either semester, or throughout the year.* Professor KREMERS.

46. Chemistry of Foods and their Adulterations. Prerequisites are course 1, General Chemistry, and one semester's work each in quantitative analysis, and organic chemistry. *A five unit-hour course during the second semester.* Assistant Professor FISCHER.

Primarily for Graduates

22. Research work in Organic Chemistry. Students desiring to become acquainted with the methods of research in organic chemistry may take work leading to theses for higher degrees. Dr. KOELKER.

34. Chemical Equilibrium. The subject treated during the first semester is the Phase Rule. The second semester will be devoted to the study of Chemical Dynamics. *One lecture or recitation a week throughout the year.* Assistant Professor WALTON.

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35. Advanced Physical Chemistry. Lectures on selected topics. *Second semester; Th., at* 8. Professor KAHLENBERG.

36. Advanced Electrochemistry. A course in the preparation of chemical compounds by means of electrolysis and the electric furnace. Weekly conferences accompany the laboratory work. *Full study throughout the year; hours to be arranged.* Professor KAHLENBERG and assistant.

37. Research Work in Physical Chemistry. Students having sufficient training may take up research work in physical chemistry, for which every facility is furnished. This course is especially designed for graduates seeking higher degrees. *Full study throughout the year; hours to be arranged.* Professor KAHLENBERG.

38. Seminary in General and Physical Chemistry. Original articles of importance will be studied in detail, with a view to broaden and deepen the understanding and to act as a stimulus to further research. *At least once a week throughout the year.* Professor KAHLENBERG and Assistant Professor WALTON.

42. Research work on alkaloids and the chemistry of foods. *Hours to be arranged upon consultation.* Assistant Professor FISCHER.

43. Research work on volatile oils or other subjects of organic chemistry, with special reference to plant chemistry. *Hours to be arranged upon consultation.* Professor KREMERS.

48. Seminary in Plant Chemistry. The seminary will meet every other Wednesday at 4, for the discussion of topics of organic chemistry, with special reference to plant chemistry. Professor KREMERS.

51. Advanced Inorganic Chemistry. Special attention is given to the discussion of modern theories of chemistry. *Lectures, Tu., Th., at* 11. Professor LENHER.

52. Inorganic Preparations. This course is preliminary for those intending to pursue research work in inorganic chemistry. *Laboratory work with one lecture or conference a week.* Professor LENHER.

53. Research Work in Inorganic Chemistry. Full facilities are offered to those desiring to study systematically some of the more important problems in inorganic chemistry. Professor LENHER.

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54. Seminary in Inorganic Chemistry. Special topics in inorganic chemistry will be studied, reference being constantly made to the original published matter. Professor LENHER.

55. Mineral Analysis. In 1908-09, a course of lectures for graduate students will be given on the methods used in the analysis of minerals. *One lecture a week throughout the year.* Professor LENHER.

PHYSICS

PROFESSORS MENDENHALL, SNOW; ASSISTANT PROFESSORS TAYLOR, GAGE; DR. INGERSOLL, DR. ROEBUCK, DR. SMITH, MR. TERRY, MR. HEIL, MR. BRAINARD; MR. ALDRICH, MR. BRIDGMAN, MR. DYE, MR. FORSYTHE, MR. GAARDEN, MR. PLAGGE, MR. STEVE, MR. TITSWORTH, MR. WENIGER.

Following the general lectures and introductory laboratory practice given in course 1, this department offers advanced work which may be divided into two general lines. Courses 2 to 7 are arranged for those who are desirous of obtaining a more special knowledge of some of the newer developments in physics, or for those who are preparing to teach. Especial emphasis is laid upon courses 2 and 3, which are teachers' courses, the aim here being to train the student in the clear presentation of this study, and to acquaint him with the details of manipulation of demonstrational apparatus. Courses 8 to 20 are designed for those who are preparing to do special work in physics, and for these courses an adequate mathematical preparation is a prerequisite. This should include a working knowledge of the differential and integral calculus, and a completion of the equivalent of courses 2, 3, and 8.

Primarily for Undergraduates

1. General Lectures and Introductory Laboratory Practice. This course is open to election by all students, and may be taken without difficulty by those who have not had the mathematics of the freshman year. *A full study throughout the year.* Lectures: *M., Tu., W., Th., at* 12. Professor SNOW. One recitation by the class in smaller sections.

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Dr. ROEBUCK. Laboratory practice, *twice a week at hours to be arranged.* Assistant Professor GAGE, Mr. ALDRICH, Mr. BRIDGMAN, Mr. DYE, Mr. FORSYTHE, Mr. GAARDEN, Mr. PLAGGE, Mr. STEVE, Mr. TITSWORTH, Mr. WENIGER.

For Undergraduates and Graduates

2a. Advanced Course of Lectures. Heat and Light. *First semester; M., W., F., at* 2. Professor MENDENHALL.

2b. Advanced Course of Lectures. Electricity and Magnetism. *Second semester; M., W., F., at* 5. Mr. TERRY.

Together with the accompanying laboratory practice (courses 3a and 3b), courses 2a and 2b are especially adapted to the needs of those expecting to teach. With this end in view, the lecture demonstrations are performed by the students before the class, thus giving each person practice in the presentation and illustration of special topics.

3a. Advanced Laboratory Practice. Heat and Light. *First semester; S.,* 9 *to* 1. Professor MENDENHALL and Dr. INGERSOLL.

3b. Advanced Laboratory Practice. Electricity and Magnetism. *Second semester; S.,* 9 *to* 1. Mr. TERRY and Mr. BRAINARD.

Courses 3a and 3b are designed to accompany courses 2a and 2b.

7. High and Low Temperature Measurement. Recent developments in theory and practice will be considered, accompanied by laboratory practice with the various methods. *Second semester; one lecture and one laboratory period a week.* Professor MENDENHALL.

8a. Mathematical Physics. Theory of Electricity and Magnetism. *First semester; Tu., Th., F., at* 10. Assistant Professor TAYLOR.

8b. Mathematical Physics. Special topics in physical optics. Theory of the grating, spectroscopy, and dispersion. The first part of Schuster's *Theory of Optics* is used as a text. *Second semester; M., W., F., at* 9. Professor MENDENHALL.

Courses 8a and 8b are extensions of courses 2a and 2b and are open to those who have taken these courses or their equivalents, and also a course in the differential and integral calculus.

9. Thesis. At the beginning of the first semester, the student is expected, with the advice of the instructors, to take up

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some special line of investigation, to be conducted under the direction of those in charge of the department. *Full study throughout the year.* Professor MENDENHALL, Assistant Professor TAYLOR, and Dr. INGERSOLL.

10. Colloquium. This is an informal meeting of the advanced students and members of the department of Physics, for the critical reading and discussion of the current periodical literature. *Throughout the year; F., 4 to 6.* Professor MENDENHALL.

11. Modern Optical Instruments. An advanced laboratory course in light and radiation, designed to follow course 2a and 3a, which are prerequisites. *Second semester; four laboratory hours a week, at hours to be arranged.* Dr. INGERSOLL.

Primarily for Graduates

14. Recent Developments in Electrical Measurements. This course will consist of reports on current papers in the line of electrical measurements, followed by informal discussions. *Two hours a week throughout the year.* Assistant Professor TAYLOR.

15. Elements of Theoretical Physics. This course, which includes the subject of elasticity, the kinetic theory, the potential function, and the conduction of heat, is designed for those who expect to devote but one year to graduate work, and is required of all candidates for the master's degree offering physics as a major study. *Throughout the year; M., W., F., at 9.* Dr. INGERSOLL.

16. Electricity and Magnetism. The treatment of this course is based on that given in Drude's *Physik des Aethers*, special attention being given to the subjects of electro-magnetism and the theory of electro-magnetic waves. *Throughout the year; M., W., F., at 12.* Assistant Professor TAYLOR.

17. The Electro-Magnetic Theory of Light. A rigid mathematical treatment of electro-magnetic waves, and their relations to the phenomona of light. *Throughout the year; M., W., F., at 9.* Professor MENDENHALL.

18. Thermodynamics. The treatment in this course will be substantially the same as that given in Plauck's *Thermodynamics*, with additional applications to problems of radiation. *Throughout the year; M., W., F., at 10.* (Omitted in 1908-09.) Professor MENDENHALL.

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19. Graduate Research. This course is designed for those who have completed the equivalent of the laboratory practice represented by the undergraduate courses, and who now desire to devote some time to investigation in special lines. This work will be encouraged by reserving in the laboratory rooms which are devoted exclusively to research work, and by securing whatever special apparatus may be necessary to the successful carrying out of original investigation. Professor SNOW, Professor MENDENHALL, and Assistant Professor TAYLOR.

Engineering Courses

101. General Lectures and Introductory Laboratory Practice. This course is similar in many respects to course 1, but is more technical in its nature, and is particularly designed to meet the needs of the engineering students, of whom it is required. Lectures, *M.*, *at* 5; *Th.*, *at* 4. Assistant Professor TAYLOR. Two recitations a week by the class in smaller sections. Dr. ROEBUCK, Dr. SMITH, Mr. HEIL. Laboratory practice, *twice a week throughout the year.* Assistant Professor GAGE; Mr. ALDRICH, Mr. BRIDGMAN, Mr. DYE, Mr. FORSYTHE, Mr. GAARDEN, Mr. PLAGGE, Mr. STEVE, Mr. TITSWORTH, Mr. WENIGER.

104. Precise Measurements. A laboratory course in the exact determination of electrical quantities. Required of juniors in Electrical Engineering, and elective for students in the other engineering courses. *First semester; twice a week.* Mr. TERRY and Mr. BRAINARD.

105. Advanced Electrical Measurements. A laboratory course in the more difficult electrical measurements such as the comparison of self-induction, mutual induction, capacity, etc. Elective for those who have completed course 3 or 104. *Second semester; Tu., F., 2 to 4.* Mr. TERRY and Mr. BRAINARD.

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ASTRONOMY

PROFESSOR COMSTOCK AND ASTRONOMER FLINT.

For Undergraduates

1. General Astronomy. A rapid survey of the fundamental concepts of astronomy. Given as a lecture course supplemented by quizzes and examination upon an assigned text. Freshmen will be admitted to this course only by special permission in each case. *Throughout the year; Tu., Th., at* 12. Professor COMSTOCK.
2. Exercises in General Astronomy. Designed as a supplement to course 1 and open only to students who have completed, or are pursuing that course. A direct study of the sky through simple observations made independently by the student, but discussed in the class room. *Throughout the year; Th., at* 7:30 P. M., at the Washburn Observatory. Astronomer FLINT.

For Undergraduates and Graduates

13. Spherical Astronomy. Apparent motion of the celestial sphere. Astronomical coordinates and their transformation. Parallax. Refraction. Time. Use of the ephemeris. *First semester; M., W., at* 12. Professor COMSTOCK.
14. Practical Astronomy. Theory and use of the sextant, theodolite, transit, and equatorial. *Second semester; M., Tu., W., Th., 2 to* 4. Professor COMSTOCK.
16. Orbital Motion. The differential equations of undisturbed motion and their integrals. Computation of ephemerides. Orbits of double stars and comets. *Throughout the year: conference M., at* 11, *with two or four hours of laboratory work a week.* Professor COMSTOCK.

For Graduates

20. Perturbations. The general equations of disturbed motion. Special perturbations. Mechanical quadratures, with numerical applications. A continuation of course 16, and open only to students who have completed that course or its equivalent. Professor COMSTOCK.

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22. The Method of Least Squares. The theory with application to numerical computations. *Throughout the year; conference F., at 11, with two or four hours laboratory work a week.* Professor COMSTOCK.

25. Research Courses. Graduate students and others desiring to pursue advanced astronomical studies will be received in the Washburn Observatory as assistants, and will take part in the regular series of observations with the equatorial telescopes or with the meridian instruments, at the same time continuing their theoretical studies. Facilities for independent original work will be afforded to such students, and their work, if of sufficient value, will be printed in the *Publications of the Washburn Observatory*. Eleven volumes of these *Publications* have already been issued.

For other courses of instruction consult the title Astronomy, in the announcement of the College of Engineering.

GEOLOGY

PROFESSOR LEITH; ASSISTANT PROFESSORS BLACKWELDER, WINCHELL; MR. MARTIN; MR. MEAD AND MR. STEIDTMANN.

Physics, chemistry and mineralogy are required of all who make geology a major study. These subjects should be taken either before or during the first year's course in geology. They are also desirable for students taking geology not as a major. Students lacking chemistry and physics will be allowed to enter course 1 only by special arrangement with the instructors. Such students are advised to take course 4, Physical Geography, or course 6, Mineralogy.

Students entering courses in mineralogy as a training in science should have a general knowledge of chemistry, at least equivalent to that derived from a high school course. No other preliminary courses are required.

Courses 8 to 22 are advanced courses, adapted for graduate students, or for students who have had at least one full year of geology and mineralogy.

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Primarily for Undergraduates

1. General Geology. This course aims to give an understanding of the forces which are now modifying the earth's crust and which have brought it to its present condition. It involves an elementary survey of dynamic, structural, physiographic, and historical geology, and of minerals, rocks, and fossils, to show the student the nature of the field covered by geological study. Excursions are made to points in the vicinity where geologic processes and forms are illustrated. An elementary knowledge of physics and chemistry is required. *Five unit-hours, first semester, at* 12. Professor LEITH and Assistant Professor BLACKWELDER.
2. Applied Geology. This includes economic geology, principles of map interpretation, and field geology. Prerequisite, course 1 or its equivalent. *Five unit-hours, second semester.* The work is divided as follows: (a) Elementary survey of economic geology. *First half of second semester; M., W., F., at* 12. Professor LEITH. (b) Principles of map interpretation. Laboratory study of geologic maps, involving the interpretation of structure and gelogic history of the areas represented. *First half of second semester; Tu., and Th., at hour to be arranged.* Assistant Professor BLACKWELDER. (c) Field Geology. The study and mapping of selected areas adjacent to Madison. Involves preparation of topographic and geologic maps, and written reports. The course includes a three-day trip to the Baraboo Ranges and the Dells of the Wisconsin river. *Twelve hours a week (optional hours) for the last twelve weeks of the second semester.* Professor LEITH and Assistant Professor BLACKWELDER.
4. Physiography. The lands, the atmosphere, and the ocean, illustrated by regional studies of the various physiographic and topographic provinces of the United States, their surface features, nature and structure of rocks, soil, climate, mineral and other resources, population, and industries, as illustrations of the processes modifying the surface of the earth and the results coming from such modification. Lectures, recitations, laboratory work, and excursions. One all-day excursion (Saturday). *Five unit-hours. First semester; Tu., W., Th., F. at* 9, *and laboratory hour to be arranged.* Mr. MARTIN.

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4a. Physical Geography. For Commerce students. This course embraces the essential principles of course 4, with a sufficient treatment of the physiography of the United States to prepare the student for Economic Geography. May not be taken by others than Commerce students. *Three unit-hours. First semester; M., W., at* 10; *and quiz hour to be arranged.* Mr. MARTIN.

5. Geography. A university course on the regions of the world, involving an areal study of each continent and its several countries, their geology, topography, hydrography, soil, climate, resources, population, industries, government, etc. The texts to be used are written by eminent geographers, especially inhabitants of the various lands treated or authorities who have visited those lands, and topographic and geologic maps by the governments of the various civilized countries in each continent will be available. There are no prerequisites, though course 4 or 4a in physical geography or course 1 in geology or an equivalent, is desirable. Not open to first year students unless they have had one of these courses. *Five unit-hours. Second semester; M., Tu., W., Th., F. at* 9. Mr. MARTIN.

5a. Geography of Europe. The geology, topography, physiographic history, climate and natural resources of the several countries of Europe; influence of geographic conditions on manner of life, location of cities and historic events; comparisons where possible with similar features and historic developments in North America. Not open to first year students. No prerequisites, though course 4 or 4a in physical geography or course 1 in geology or an equivalent is desirable. *Three unit-hours. Second semester; M., W., F., at* 10. (Not given in 1908-09.) Mr. MARTIN.

6. General Mineralogy. The course begins with an elementary study of crystallography, after which the physical and chemical characters of minerals are reviewed. Descriptive mineralogy follows with laboratory work in blowpipe methods and determinative mineralogy. The course is concluded by a brief treatment of the characteristics of rocks and their classification. It is desirable that a college course in general chemistry be taken first, but students who have had a high school course in chemistry may take mineralogy by special arrangement with the professor in charge.

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Physics and trigonometry should also be taken, if possible. *Throughout the year; M., Tu., W., Th., F., at* 11. Assistant Professor WINCHELL.

7. Short course in Mineralogy. This course is planned to meet the needs of those whose life work will require only slight acquaintance with minerals. It is open to engineering and chemistry students whose required studies do not leave time for course 6. The principles of mineralogy and crystallography are briefly treated, and attention is given to a few of the commonest minerals and to some of the most important ore minerals. *First semester; Tu., Th., F., at* 2. Assistant Professor WINCHELL and Mr. STEIDTMANN.

For Undergraduates and Graduates

8. Petrology. The course in petrology is intended to give the student a practical knowledge of rocks of all kinds. In order to study the texture of rocks and to identify accurately the mineral constituents a microscope is essential. Therefore, the course opens with a review of the principles of optics as applied to the polarizing microscope; this is followed by the microscopic study of the important minerals. The textures of rocks are then investigated; and the mineral and chemical composition and the textures are used as a means of rock classification. Prerequisite; course 6. *First semester; M., Tu., W., Th., F.,* 8 *to* 10; *second semester; M., W., F.,* 8 *to* 10. Assistant Professor WINCHELL.

11. Economic Geology. Emphasis is placed on the occurrence, origin, and development of metallic minerals, involving a summary of the principles of metamorphism and ore deposits given in course 15. Excursions are taken to iron, copper, lead and zinc districts accessible from Madison. The course includes also a study of water, building materials (of mineral origin), soils, coal, petroleum, natural gas, and minor non-metallic mineral products. Chemistry 1, Mineralogy 6 or 7, and Geology 1 and 2 are prerequisites for this course. *Throughout the year; M., W., F., at* 4. Given in alternate years with course 15. Professor LEITH.

12. Historical Geology. The geological history of the Earth and its living things. The theories of the Earth's origin are

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first discussed, and then each geological period is taken up in some detail with regard to changes in geography, topography and life. The stratigraphy of the United States, and less fully that of other countries, is studied in so far as it furnishes data for ascertaining these events and changes. The evolution of the successive groups of animals and plants is treated in its relation to the physical changes just mentioned, and, by way of illustration, a few of the characteristic fossils from each period are studied in the laboratory. Course 21 is a prerequisite, except for those who already have an adequate acquaintance with botany and zoology. *Second semester; five hours a week, at* 9. Assistant Professor BLACKWELDER.

13. Advanced Physiography. A second course on the physical geography of the lands, involving both the topical and regional study of processes and features of the earth's surface. Lectures, reading, field work, and map investigations, for which all the topographical and geological maps of the United States Geological Survey and the State Geological Surveys, the government surveys of many foreign countries, and an extensive series of models and photographs, are available. Geology 1 or 4, or an equivalent, is prerequisite. Not open to freshmen. *Two unit-hours. Second semester; hours to be arranged.* Mr. MARTIN.

14. Principles of Structural Geology. The behavior of rocks under fracture and flowage, requiring the discussion of joints, faults, folds, and cleavage, from field, experimental and mathematical standpoints. *Lectures and laboratory work. First semester; Tu., Th., at* 4. Professor LEITH.

15. Metamorphism. The course is based largely on the survey monograph on this subject by President Van Hise. *Lectures and laboratory work. Throughout the year; M., W., F., at* 4. Alternates with course 11. Professor LEITH.

16. Metamorphic Rocks. A laboratory course. With special reference to description and classification under the principles of metamorphism of courses 11 and 15. *Throughout the year; Tu., W.,* 2 *to* 4. Mr. MEAD.

17. Principles of Pre-Cambrian Geology. This course treats of the pre-Cambrian stratigraphy of North America, and with the problems of correlation, structure and metamorphism to be met in the study of the ancient crystalline rocks.

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U. S. Geological Survey specimens and slides from all the principal areas of pre-Cambrian rocks of North America are available for study. Alternates with course 18. *Second semester; Tu., Th., at* 4. Professor LEITH.

18. Lake Superior Geology. A course offered because of the scientific and commercial importance of the Lake Superior region, and the relations of this department to its study. The U. S. Geological Survey Monographs on the Lake Superior region are used as texts, and the original specimens, slides, and charts described in the monographs are at the disposal of the students. At the close of the course in the spring, an excursion is made to points of geologic and economic interest in the Lake Superior country. Given in alternate years with course 17. *Second semester; Tu., Th., at* 4. Professor LEITH.

19. Petrology of Lake Superior Rocks. Study of selected rock types of the Lake Superior region and the problems of mineral paragenesis and rock metamorphism connected therewith. Prerequisite, course 10. *Three hours a week.* Assistant Professor WINCHELL.

20. Advanced Mineralogy. Special problems in mineralogy or detailed crystallographic work. Prerequisite, course 6. *Hours to be arranged.* Assistant Professor WINCHELL.

21. Paleontology. A brief study of the more important groups of animals and plants, with special reference to the extinct types which have been prominent in the various periods of geologic history. The course is designed to serve as a foundation for course 12. The work consists of lectures, supplemented by laboratory study of typical specimens and reference to the more important works on Paleontology. *First semester; M., W., F., at* 9. Assistant Professor BLACKWELDER.

22. Research Work. Offered by the members of the department in continuation of their respective courses. President Van Hise will assist in the direction of this work. The amount of time that can be allotted is subject to special arrangement.

23. Geological Seminary. Subjects under investigation by the members and students of the department, and reviews of important publications are discussed. *F., at* 5.

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METEOROLOGY

MR. BARTLETT OF THE U. S. WEATHER BUREAU.

For Undergraduates and Graduates

1. Meteorology. The properties and phenomena of the earth's atmosphere, including barometric pressure, temperature, precipitation, fog, dew, frost, clouds, the general circulation of the atmosphere, and general and local storms. The study of the weather map. Weather forecasting.

   Meteorological observations. Laboratory work with a complete set of meteorological instruments, in taking, recording and summarizing weather observations. *First semester; elective, two or three unit-hours.*

2. General Climatology. The climatic elements. Solar or mathematical climate. Physical climate, including that of continents, oceans and mountain regions. Climatic barriers. Geological and secular changes of climate. Periodic variations in climate. Relations between climates and plant and animal life.

   The Climate of the United States. General features (illustrated). Comparison of climates of different sections. The climate of Wisconsin. Laboratory work in deriving, tabulating, computing and charting climatic data and in studying the peculiarities of selected sections. *Second semester; elective, two or three unit-hours.*

3. Advanced Work in Meteorology. A consideration of atmospheric dynamics, based upon the discussions of Ferrel, Bigelow and Hann. To follow or accompany course 1. *Either semester; two hours.*

BIOLOGY

THE BIOLOGICAL DEPARTMENTS

Study in the biological sciences is conducted in the independent, though coordinated departments of Zoology, Botany, Anatomy, Physiology, and Bacteriology and Hygiene. The purpose of these departments is to offer the fullest possible facilities for the study of biological problems. In the department of Botany, the structure, physiology, classification and pathology of plants,

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and the fundamental problems of cell structure and function are studied, as well as the direct application of the science to pharmacy and agriculture. In the department of Bacteriology, microorganisms are first studied from the general biological point of view, and, in the advanced courses, attention is devoted to the applications of bacteriology, especially to medicine, sanitation and agriculture. In the department of Zoology the broader problems of animal life are considered, as well as the special anatomy, physiology and life history of animals. In the department of Anatomy the development, and the gross and microscopic structure of the lower vertebrates and man are taken up, both in their more general scientific aspects, and in reference to the special needs of students preparing for practical medicine. In the physiological department physiology and physiological chemistry are pursued from a similar point of view. Each department offers a series of graded courses so arranged as to meet the needs of advanced students in various lines. Ample opportunity for research is offered those capable of undertaking original investigation. This work is encouraged by the Biological Club, in which all the departments participate, as well as by special seminaries held by the various departments.

The Madison lakes give this university peculiar advantages for biological work. Science Hall is located only a few hundred feet from Lake Mendota, and abundant apparatus is available for the collection and study of the lake fauna and flora. The facilities of the Wisconsin Geological and Natural History Survey are also available at all times. The libraries of the University and the Wisconsin Academy of Sciences, Arts and Letters afford exceptional advantages in the way of literature. The number of sets of important journals has been greatly increased within recent years, so that at present most of the important biological journals are available.

Primarily for Undergraduates

1. General Biology. Introductory to botany, zoology, anatomy, physiology and bacteriology, and required as a preliminary to all advanced work in these departments. *Two recitations or lectures, one quiz, four laboratory periods a week. Lectures M., and W., at* 3. Professor HARPER and Assistant Professor HOLMES.

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For laboratory work the class is divided into sections, each meeting for two hours daily. Associate Professors ALLEN, MARSHALL; Assistant Professors HOLMES, OVERTON; Dr. LEWIS, Dr. MARQUETTE, Mr. WAGNER; Miss ALLEN, Mr. ARZBERGER, Mr. BRANNON, Mr. HEGNER, Miss HICKMAN and Mr. VORHIES. Quiz divisions meet once a week.

The first semester is devoted to a study of the general principles of biology as illustrated by plants. The second semester is devoted to zoology. Students can enter the course in either semester.

ZOOLOGY

PROFESSOR BIRGE, ASSOCIATE PROFESSOR MARSHALL, ASSISTANT PROFESSOR HOLMES; MR. WAGNER, MR. HEGNER, AND MR. VORHIES.

The courses in Zoology are designed to give the student a thorough acquaintance with the facts of the science and the fundamental problems of biology, so that he may be well equipped either for teaching or investigation. The department possesses a good collection of animals, both for morphological and systematic work. It is exceptionally well provided with sets illustrating life histories, mimicry, and seasonal and sexual dimorphism. There are numerous sets of models by Ziegler and others illustrating the development of animals and a large collection of Blatschka models of invertebrates. There is also a good and rapidly increasing collection of the fauna of the State. The laboratories are well supplied with apparatus, and the facilities of the Wisconsin Geological and Natural History Survey are available at all times. The preparation for, and encouragement of, research receive especial attention, and ample facilities are afforded the student who wishes to take up any line of investigation.

A Journal Club meets for the discussion of recent zoological literature.

For Undergraduates and Graduates

2a. Invertebrate Zoology. A discussion of the structure, development, classification, instincts, and life histories of invertebrate animals. Occasional field excursions will be made, and especial attention will be paid to the local fauna. Invertebrate zoology is a year's course, but it is so divided that the two parts come in the first semester of alternate

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years. Either half of the course, however, may be taken independently of the other. The course which is devoted to the lower invertebrates, the Protozoa, Coelenterata, Vermes, Mollusca, and some smaller groups will be given in 1908-09. *First semester. Lectures M., W., at* 10. *Three laboratory periods a week.* Assistant Professor HOLMES.

2b. A continuation of course 2a devoted to the higher invertebrates, the Crustacea, Arachnida, Myriapoda, Insects, Echinodermata, and Tunicata. *First semester. Lectures; M., W., at* 10. *Three laboratory periods a week.* (Not given in 1908-09.) Assistant Professor HOLMES.

4. Vertebrate Zoology. A study of the structure, physiology, habits, classification, and distribution of vertebrates. This course will cover for the vertebrates the same general ground discussed in course 2. *Second semester. Lectures; Tu., Th., at* 8. *Laboratory and field work three periods a week. Five unit-hours.* Mr. WAGNER.

5. Organic Evolution. A series of lectures on the evidences for and general bearing of the theory of organic evolution. These lectures require no previous biological work, and are open to all students beyond the freshman year. *First semester; Tu., at* 4. Assistant Professor HOLMES. Other lecturers will also take part in this course.

6. Variation and Heredity. A discussion of the main facts and theories of variation and heredity, and their relation to other problems, biological and sociological. The work will be carried on in part as a lecture course and in part as a pro-seminary. *First semester; two hours a week, at hours to be arranged.* Mr. WAGNER.

7. Evolution Problems. A critical discussion of the theory of organic evolution, and the general development of evolutionary speculation since Darwin. Lectures and reports on assigned topics. Open to advanced students of biology, and others who may be especially qualified to carry on the work. *Second semester; Tu., Th., at* 2. Assistant Professor HOLMES.

9. Entomology. A general course dealing with the anatomy, embryology, classification, and life histories of insects. *Second semester. Lectures, Tu., Th., at* 10. *Three laboratory periods.* Associate Professor MARSHALL.

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10. Animal Parasites. The structure and life history of animal parasites, with especial reference to those of man. Lectures and laboratory work. *First semester. Three unit-hours.* Associate Professor MARSHALL.

11. Elementary Entomology. An elementary course in entomology, on the structure, life history, and habits of insects and their relation to man and other animals. Open to all students. *Lectures. First semester; M., W., at* 11.

12. Entomology. Life-history and structure of economic insects. This course gives, both in lectures and laboratory work, the life-history, structure and classification of those insects which are of economic importance. *Three unit-hours study, First semester.* Associate Professor MARSHALL.

17. Bionomics. It is the aim in this course to consider the habits and activities of animals in relation to their environment. An effort will be made to discuss the present state of our knowledge on the following points: The relation of animals to moisture, heat, and light, the supply of oxygen, and the nature of the substratum; migration; the fauna of the water, its nature, distribution and movements; and the general questions of geographical distribution. This course should be preceded by courses 2 and 4. *Two lectures a week at hour to be arranged. Laboratory and field work once a week. First semester; three unit-hours.* Mr. WAGNER.

18. Morphogenesis. A discussion of the results of experimental work upon the development and regeneration of organisms, and the general theories of development and regeneration. Open to advanced students of biology. *One lecture a week during the first semester.* Assistant Professor HOLMES.

20. Teachers' Course. A consideration of the aims, methods, and subject matter of zoological instruction in the schools. *One lecture or conference a week during the first semester.* Assistant Professor HOLMES.

21. Ornithology. A study of the main facts relating to birds. This course is intended to meet the needs of students interested in nature study. In the field work an opportunity is offered to become acquainted with most of our common forms. *One lecture and one laboratory or field period a week. Hours to be arranged. Two unit-hours.* Mr. WAGNER and Mr. VORHIES.

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23. Entomology. Advanced work for students who have finished course 9 and desire to continue some special line of work or investigation. *Throughout the year.* Associate Professor MARSHALL.

28. Research Work. Special work for advanced students under different members of the staff. Special problems will be assigned, and students prepared for independent investigation will be given all the opportunities available for carrying on their work.

BOTANY

PROFESSOR HARPER, ASSOCIATE PROFESSOR ALLEN, ASSISTANT PROFESSORS DENNISTON AND OVERTON; DR. LEWIS, DR. MARQUETTE; MISS ALLEN, MR. ARZBERGER, MR. BRANNON AND MISS HICKMAN.

For Undergraduates and Graduates

1. General Biology. See Index.

2. Plant Morphology. Algae and fungi. Course 1 is a prerequisite to this course. The morphology of types of the principal groups will be studied in the laboratory. The lectures will give an outline of the development of the different series and their classification and will also discuss problems of research in connection with the different groups. *First semester; M., W., F.,* 2 *to* 4; *Tu., Th.,* 2 *to* 3. Lectures, *Tu., Th., at* 3. Professor HARPER and Dr. MARQUETTE.

3. Plant Morphology. Liverworts, mosses, ferns, equisetum and lycopods. A continuation of course 2. *Two unit-hours, during the second semester; M., Tu.,* 2 *to* 4. Lecture, *Tu., at* 3. Professor HARPER and Dr. MARQUETTE.

4. Plant Morphology. The seed plants. A study of the life histories of a few types of seed plants, including the phenomena of pollination, fertilization, development of organs and tissues, and discussions of morphological homologies and allied developmental problems. *Second semester; W., Th., F.,* 2 *to* 4; *lecture, Th., at* 3. Associate Professor ALLEN and Miss HICKMAN.

5. Vegetable Histology. A systematic study of the tissues of phanerogams and ferns. Use of reagents and stains, section cutting, and mounting. Required of all students in

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pharmacy. *Three unit-hours, first semester.* Assistant Professor DENNISTON and Dr. LEWIS.

6. Physiology of the Seed Plants. A course of lectures and laboratory work on the special physiology of the vascular plants. The laboratory work is presented as a series of problems on the nutrition, growth, reactions, etc., of the common cultivated plants. *Second semester; four unit-hours.* Professor HARPER and Assistant Professor OVERTON.

7. Cytology. General physiology of organisms. Lectures and experimental work on the reproduction, irritability and nutrition of the cell. Must be preceded by courses 2, 3 and 4, and an ability to read German is desired. *Daily; hours on consultation.* Professor HARPER and Dr. MARQUETTE.

8. Mycology. Special work on the morphology and classification of the fungi is offered to advanced or graduate students. *Hours on consultation.* Professor HARPER.

9. Plant Pathology. Lectures and laboratory work on the diseases of plants. Especial attention is given to the methods of infection, effect on the host plant, etc., of the fungi which cause diseases of garden crops, cereal grains, etc. *Hours on consultation.* Professor HARPER and Mr. LUTMAN.

10. Diseases of Trees. A special course of lectures and laboratory work on the diseases of economically important trees, and the causes of decay in timber used for building and other purposes. The lectures may be taken without the laboratory work. *Two unit-hours, second semester. Hours on consultation.* Associate Professor ALLEN.

11. Bryology. Special work on the morphology and classification of the bryophytes is offered to advanced or graduate students. This course must be preceded by courses 1 to 4, or their equivalent. *Hours on consultation.* Associate Professor ALLEN.

12. Dendrology. A study of the structure and characteristics of forest trees. Lectures, laboratory, and field work. Open to those who have had the equivalent of one semester's work in general botany. *Two unit-hours; second semester.* Assistant Professor DENNISTON.

13. Botanical Methods. Practice will be given in methods of preparing plant material and of growing various algae and fungi for use in the class room. Opportunity will also be

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given for collecting and preserving material for high school laboratory courses. Open to students who have had courses 1 to 4. *Two unit-hours; second semester.* Professor HARPER and Dr. MARQUETTE.

14. Hybridization, Parthenogenesis, and special problems in the fertilization of the angiosperms. The course deals with some of the more fundamental principles of plant breeding. *First semester; two unit-hours.* Assistant Professor OVERTON.

15. Botanical Seminary. For the study of special subjects in general physiology, and for the presentation of the results of investigation. Professor HARPER.

16. Research Work. Students whose preparation is adequate may on consultation be assigned special subjects of investigation. *Daily.* Professor HARPER, Associate Professor ALLEN and Assistant Professor DENNISTON.

17. Facts and Theories of Heredity. A critical discussion of the more significant theories of heredity in the light of the results of recent experimental and cytological investigations. Course 1 or its equivalent is a prerequisite. *Second semester; two lectures a week.* Associate Professor ALLEN.

18. Phycology. Special work on the morphology and classification of fresh-water and marine algae is offered to advanced or graduate students. This course must be preceded by courses 1 to 4, or their equivalent. *Hours on consultation.* Associate Professor ALLEN.

19. Plant Reactions. A course of lectures on the responses of plants to external stimuli, with descriptions of the more modern apparatus for research on the physiology of the cell and occasional demonstrations. *Second semester; twice a week.* Dr. MARQUETTE.

20. Description and Classification of Cultivated Plants. A brief systematic course for agricultural students dealing with the structure and relationships of the common crop plants and weeds. *First semester; two unit-hours.* Professor HARPER and Dr. LEWIS.

30. Morphology and Classification of the Seed Plants. An elementary course designed primarily for students of pharmacy and agriculture, but open to others who desire to begin the study of botany. The life histories and ecology of

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seed plants, with a special study of types of economic importance, as drug and cultivated plants. Field work will be an important feature. Excursions on Saturdays. *Daily, 8 to 10; second semester.* Assistant Professor DENNISTON and Mr. ARZBERGER.

31. Microscopical Examination of Drugs and Food Products. The object of this course is to study and illustrate the methods of identifying powdered drugs and food products, and detecting adulterations. *Three unit-hours; second semester.* Assistant Professor DENNISTON.

32. Pharmacognosy. This course presents to the student the main facts of the natural history of drugs, and the plants producing them. Required of all students in pharmacy. Text-book, Culbreth's *Materia Medica. Twice a week; throughout the senior year.* Assistant Professor DENNISTON.

33. Pharmacognosy. For three-year or four-year pharmacy students. The course consists in a study of the microscopic structure and characteristics of further types of drugs. Required of all seniors. *Three unit-hours during the first semester of the senior year.* Assistant Professor DENNISTON.

34. Pharmacognosy. An abridgment of the work given to pharmacy students is offered for those intending to study medicine. As far as may be, the methods used are those detailed for the foregoing courses. No drug collection is required and no microscopic study is expected. Two lectures and two hours' laboratory work per week. *Three unit-hours during the first semester.* Assistant Professor DENNISTON.

35. The Collection and Commerce of Crude Drugs. Laboratory and field work supplemented by lectures and recitations. *One unit-hour during the first semester of the junior year.* Assistant Professor DENNISTON.

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ANATOMY

PROFESSOR BARDEEN, ASSOCIATE PROFESSOR MILLER, DR. ALLEN, AND MR. GRAY.

For a fuller description of the courses offered in this department, see announcements under College of Medicine.

For Undergraduates and Graduates

5. Comparative Anatomy of Vertebrates. *First semester; M., W., F.*, 8 *to* 10. *Second semester; M., W., F.*, 2 *to* 4. Dr. ALLEN.
10. Histology and Organology. *Tu., Th., S.*, 9 *to* 12. Four unit-hours. Associate Professor MILLER.
15. Vertebrate Embryology. *Second semester; M., W., F.*, 8 *to* 10. Professor BARDEEN, and Dr. ALLEN.
17. Problems of Vertebrate Embryology. *Second semester; M., W., F.*, 11 *to* 1. Dr. ALLEN.
21. Human Anatomy. *Throughout the year; daily*, 2 *to* 5. *Six unit-hours per semester.* Professor BARDEEN, Associate Professor MILLER, and MR. GRAY.
22. Topographical Anatomy. *First semester; M., W., F.*, 2 *to* 5 Three unit-hours. Associate Professor MILLER.
23. Special Human Anatomy.
26. Neurology. *Second semester; Th., S.*, 9 *to* 12. Three unit-hours. Associate Professor MILLER.
30. Advanced Work in Anatomy.

Primarily for Graduates

35. Investigation under Direction.
40. Independent Investigation.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR ERLANGER, ASSISTANT PROFESSOR BRADLEY, AND DR. BLACKMAN.

Primarily for Undergraduates

1. Elements of Human Anatomy and Physiology. Lectures and quizzes illustrated by models, special preparations and experiments. This course is intended primarily for those who wish a general, rather than a detailed, knowl-

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edge of the structure and functions of the human organism, and for those intending to teach elementary human physiology. It is open to all students except Freshmen. *Second semester; M., W., F., at* 11. Dr. BLACKMAN.

For Undergraduates and Graduates

The following courses are designed especially for students intending to study medicine or to teach the biological sciences, and are open only to those who have had a previous training in general and organic chemistry, including quantitative analysis, (course 1) and general biology (course 1). As a preparation for course 5, comparative anatomy, histology, and neurology, (anatomy 5, 10, and 26) and course 4 are required.

4. Physiological Chemistry. (a) Lectures. These will consist of a brief summary of the entire province of physiological chemistry. (b) Laboratory course. This will include the chemistry of various substances, such as proteids, which are usually not familiar to the student of pure chemistry, a chemical study of most of the tissues and fluids of the body, and a study of those physiological-chemical processes that can be closely imitated outside the body, special emphasis being laid on such enzymic processes as salivary, pancreatic, and gastric digestions. The course also includes a quantitative analysis of urine (normal and pathological), milk, gastric juice, stomach washings, and foods, and an examination of the faeces with especial reference to putrifiactive processes. (c) Conferences are held for the discussion of the laboratory work, and for the consideration of the progress and needs of the students. *Second semester; M., Tu., W., F.,* 10 *to* 1. *Four unit-hours.* Assistant Professor BRADLEY.

5. Physiology. The following subjects are considered: Muscle and nerve, central nervous system, special senses, blood, circulation, respiration, secretion, digestion, and nutrition. (a) Lectures and demonstrations. (1) Preliminary course. *May* 1 *to end of the year. M., Tu., W., Th., F., at* 12. *Two unit-hours.* (2) Continued course. *First semester; M., Tu., W., Th., F., at* 12. *Five unit-hours.* (b) Laboratory work. The preliminary course of lectures must precede, and the continued course of lectures be taken in conjunc-

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tion with or precede the laboratory work. *First semester until the Christmas recess; Tu., Th.,* 2 *to* 5. *Two unit-hours.* Professor ERLANGER and Dr. BLACKMAN.

Primarily for Graduates

8. Advanced Laboratory Course in Physiology. This course is designed primarily for teachers of advanced animal physiology, as well as for physicians and students of medicine who desire a wider experience in experimental physiology than can be gained in course 5. It consists mainly of experiments demonstrated in course 5. The time or amount of work is not limited, except that assistance must be arranged for by definite engagements. The instruction is given individually, and may involve undertaking a definite investigation. Professor ERLANGER.
9. Physiology of the Circulation. A course, designed primarily for physicians, consisting in part of lectures but mainly of demonstrations and practical work in the laboratory. Special attention will be paid to the principles of sphygmomanometry and to the physiological basis of heart irregularities together with the methods of detecting them. *Time to be arranged by conference with applicants.* Professor ERLANGER and Dr. BLACKMAN.
10. Advanced Laboratory Course in Physiological Chemistry. This course corresponds to course 8. Assistant Professor BRADLEY.
12. Journal Club. Advanced students are expected to report from time to time upon papers of physiological and physiological-chemical interest that may appear in the current journals. *One hour a week throughout the year.*

BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL; ASSOCIATE PROFESSOR FROST; ASSISTANT PROFESSOR HASTINGS; DR. FULLER, MR. HOFFMANN, MR. NELSON, AND MR. SMITH.

For students desiring a general laboratory course in Bacteriology course 1 should be taken. Chemistry and General Biology should precede this work. On the basis of this general course, the student is then able to take up special work in Medical (course 2), Sanitary (course 8), Dairy (course 21), Agricultural (course 20),

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Home Economics (course 9), Bacteriology. Course 1 followed by courses 2, 9, 20, or 21, are prerequisites for major work in bacteriology.

Primarily for Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *First semester; lectures and laboratory; three unit-hours. Given in the College of Letters and Science. Lectures; Tu., Th., at* 11; *two laboratory periods of two hours each per week.* Associate Professor FROST and Mr. NELSON.
3. Thesis Work in Bacteriology. Students who desire to select their theses in this department must take course 1 in their junior year or before, and if the subject is selected in any other than general biological lines, the special work in medical, sanitary, or agricultural bacteriology, respectively, should be taken in the second semester of the junior year. The subject should be selected before the close of the junior year. Professor RAVENEL, Associate Professor FROST, and Assistant Professor HASTINGS.
6. Communicable Diseases: Their causes and prevention. A course of lectures non-technical in character and open to all students except freshmen. No previous work in science is required. *Second semester. One unit-hour.* Associate Professor FROST.
7. General Hygiene. A course of lectures dealing with the hygienic aspects of air, water, and food supplies, and the disposal of sewage. Non-technical in character and open to all students except freshmen. *First semester; one unit-hour.* Associate Professor FROST.

Primarily for Undergraduates and Graduates

2. Medical Bacteriology. A consideration of the relation of bacteria to disease processes in man and animals. A course designed to give students who intend to study human or veterinary medicine, a survey of the subject of pathogenic bacteria. This course should be taken by students intending to devote themselves to general bacteriology. *First semester; lectures and laboratory; five unit-hours.* Professor RAVENEL; Mr. NELSON and Mr. SMITH

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4. Advanced Work in Bacteriology. Students who have had sufficient preliminary work (course 1 and courses 2, 9, 20, and 21, or their equivalent) will be assigned special problems for study. *Laboratory work and conferences.* Professor RAVENEL and Associate Professor FROST.

When the number of students warrants it this course will be extended to include work in practical hygiene.

8. Biology and Chemistry of Water Supplies. Course 1 is a prerequisite study. This course considers the technique of water examination, the hygiene of water-born diseases, the examination of filters, the disposal of sewage, and the interpretation of analyses, bacteriological and chemical. *Lectures and laboratory work; three unit-hours.* Professor RAVENEL; Dr. FULLER and Mr. BOWLES.

9. Industrial Bacteriology. Lectures, recitations and laboratory work. This course includes a study of the micro-organisms and processes concerned in the more common fermentations, as alcoholic, lactic and acetic acid; simple analyses of water, milk, and food supplies; a study of disinfectants, etc. It is intended especially for students in home economics and for chemical students who do not have the time for the more extended courses in medical or agricultural bacteriology. Course 1 is prerequisite. *Three or five unit-hours.* Associate Professor FROST.

11. Immunity. Includes a study of the phenomena and theories of immunity in general as well as the various infectious diseases. Lectures and reports. Open only to advanced students. *First semester. One unit-hour.* Professor RAVENEL.

11a. Laboratory Course in Immunity. This is an experimental course and includes a study of cytotoxins, agglutinins, precipitins, toxins, antitoxins, opsonins, etc. *First semester; two unit-hours or more.* Associate Professor FROST.

12. Pathogenic Protozoa. This includes a study of the most important of the protozoa known to cause human and animal diseases. Open only to advanced students. Lectures, demonstrations and reports. *Second semester. One unit-hour.* Associate Professor FROST.

20. Agricultural Bacteriology. A general survey of the relation of bacteria to agriculture, embracing their relation to soils, manures, diseases of plants and animals, and to dairying.

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Second semester; lectures; three or five unit-hours. Professor RAVENEL; Assistant Professor HASTINGS; Mr. HOFFMANN and Mr. SMITH.

21. Dairy Bacteriology. The relation of bacteria to the production of market milk, butter and cheese. *First semester; lectures and laboratory work; three unit-hours.* Assistant Professor HASTINGS.

40. Journal Club. A club consisting of instructors and advanced students in the department meets every second week throughout the year. Advanced students are required to report on the progress in science along lines assigned to them by the program committee. This necessitates the reading of current scientific journals furnished by the department.

Primarily for Graduates

5. Research Work in Bacteriology. Opportunity is offered for work in original investigation, which may be arranged for on consultation. A reading knowledge of French and German is necessary. Professor RAVENEL, Associate Professor FROST, and Assistant Professor HASTINGS.

PHARMACY

ASSISTANT PROFESSOR FISCHER, MR. DU MEZ, AND MR. TITUS.

Primarily for Undergraduates

1. Laboratory Technique. The principles and practice of pharmaceutical operations, such as weighing, determination of specific gravity, boiling point, melting point, optical rotation, maceration, percolation, diffusion, dialysis, crystallization, and precipitation. *Lectures and recitations, W., F., at* 11; *one laboratory period.* Mr. DU MEZ.

2. Pharmaceutical Technology. The study and manufacture of galenical and other preparations: waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also of pills, suppositories, ointments, plasters, etc. *First semester; lectures and recitations, Tu., Th., at* 11; *three laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

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3. Prescription Practice. The study of the prescription; practice in the compounding of physicians' prescriptions; also the study of physical, chemical, and therapeutical incompatibilities. *Second semester; lectures and recitations, Tu., Th., at* 11; *two laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

10. The Economic Function of the State. This course consists of a series of weekly lectures, historical and critical, on the state in its relation to industry, trade, and the professions, with special reference to pharmacy. Given in alternate years.

11. Law Applied to Pharmacy. A course of lectures treating of the validity and construction of laws especially restraining the practice of pharmacy; of the liability of pharmacists, both criminal and civil; for their own violation of laws and that of their agents; also for their own negligence and that of their agents. Given in alternate years.

12. State Boards of Pharmacy. The development of state boards of pharmacy in the United States and their legal functions, with special reference to their duties as examining bodies.

13. The History of Pharmacy. *Second semester; every other Wednesday at* 4. Professor KREMERS.

14. Pharmacopoeias and their Revision, with special reference to the U. S. Pharmacopoeia. *Second semester; every other Wednesday at* 4. (Given in 1906-07.) Professor KREMERS.

20. Special Topics. During the academic year 1907-08 the following special lectures have been given: Professor Oscar Oldberg, Dean of the Northwestern University School of Pharmacy; The Immediate Future of American Pharmacy, Dr. A. B. Stevens, Professor of Pharmacy, University of Michigan: Pharaceutical Dispensing. Professor H. U. Whilpley, Dean of the St. Louis College of Pharmacy: Some Prominent Pharmacists I have Known. Professor J. V. Scholtterbeck, Dean of the University of Michigan School of Pharmacy: Side Lights on Pharmacognosy.

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HOME ECONOMICS

PROFESSOR HUNT AND MISS HUNTINGTON.

Primarily for Undergraduates

1. House Sanitation. The site, surroundings, and construction of a dwelling house considered with reference to health. This course is designed for all undergraduates except those specializing in Home Economics, who are advised to take course 6. *Three unit-hours. First semester; Tu., Th., at* 11 *and one hour to be arranged.* Professor HUNT.
2. House Decoration. The decorations and furnishings of a house considered with reference to beauty. *Second semester; one unit-hour.* Professor HUNT.
3. Food Materials. Lectures upon the composition and nutritive value of foods, and the processes involved in their manufacture and preparation. Laboratory work includes cooking, experiments to show the composition of food, and household tests for adulteration of food. Prerequisite: General Chemistry. *Five unit-hours. M., W., at* 2. *Laboratory periods; M., W.,* 3 *to* 5; *F.,* 2 *to* 4. Miss HUNTINGTON.
4. Food Materials. A continuation of course 3, including the calculation of dietaries, a study of dietetics, and practice in the preparation of meals of given food value. *Second semester; M., W., F.,* 2 *to* 4. Professor HUNT.
5. Household Economy. A study of the materials used in the house, such as woods, metals, and fabrics, and of the organization of the household, and of the details of house management. *Two unit-hours. Second semester; Tu., at* 8, *and a laboratory period of two hours a week to be arranged.* Miss HUNTINGTON.
6. Advanced Course in House Sanitation. Designed for students specializing in Home Economics. Prerequisites: chemistry and bacteriology. *First semester; M., W., F., at* 9. Professor HUNT.

   Course 6 may be substituted for course 1, but credit will be given for only one of the two courses.
7. Chemistry of Foods. Lectures and laboratory practice in food analysis and in the detection of adulterants. Prerequisites: Chemistry 1 and the first semester of Chemistry 20 and of Chemistry 11. *First semester; three unit-hours.*

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8. Microscopical Examination of Food Products and Fibers. The histology of plant products used as foods, beverages, and condiments, with special reference to the detection of adulterants. A study of the structure and nature of the common textile fibers is also included. *Second semester; two unit-hours.* Dr. DENNISTON.
9. Bacteriology for Students in Home Economics. (See Index under Bacteriology.)
10. Teachers' Course. The history of the Home Economics movement, the purpose and method of work in schools of different grades. The relation of the subject to other studies, investigational method of work, and reports of Home Economic topics in current literature. *Throughout the year; Tu., at* 12. Professor HUNT, and Miss HUNTINGTON.

MUSIC

PROFESSOR COLE; EMERITUS PROFESSOR PARKER; MR. BREDIN, AND MR. OWEN.

The courses in music, except course 1, are open as electives to students, freshman excepted, in any department of the University who show sufficient musical ability to pursue them with profit, and receive the same credit as similar courses in other departments of the University, except when otherwise specifically stated in the following explanatory statements.

Course 1 is open to election in the freshman year by candidates for the degree of Bachelor of Arts, in addition to a minimum of fourteen hours, but does not count as a part of the required 120 hours. For admission to course 1, no previous knowledge of music is required. This course will be found useful in strengthening preparation for the courses in harmony and counterpoint.

Those desiring to take course 2 must possess a knowledge of musical notation, a correct ear, and ability to read simple melodies at sight and to play a simple hymn-tune. Courses 1, 2, and 3, or their equivalent, are required as a preparation for course 6. This course is open only to those who show special aptitude for composition. Students may take the lectures of the second semester of course 7 without having taken those of the first semester.

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Course 9 is intended primarily for those who expect to teach in the public schools, either in the grades or high school. The course is open, however, to all students of the University except freshmen. No previous knowledge of music is required for entrance to this course. The work of the second semester is open without examination to those who have completed the work of the first semester and to Normal school graduates who have finished the course in music in the state Normal schools. Others are admitted only on examination.

Course 10 provides for advanced study in orchestral music, and is open to all who have had sufficient experience in such work to enable them to pass a satisfactory examination. Credit is given for the second year of study. Symphonies, classical overtures, and standard concert selections are studied. Advanced vocal and instrumental students are given an opportunity to practice with the orchestra in solos and concertos.

Course 11, Conducting, is open to all students for chorus drill. The subjects considered are: methods of beating time, use of the baton, organization of a chorus and orchestra, study and interpretation of songs, and practice in conducting. Credit is allowed for the work of the second semester.

Course 12, Principles of Music Education, consists of a series of lectures on the principles of education with special reference to the work of the supervision of music in the public schools.

Course 13 is cultural and informational in character, and presents, through lectures and musical illustrations, a study of the elements of intelligent enjoyment in music, from the standpoint of the listener rather than the performer. No technical knowledge of music is required for entrance to this course.

Course 14 is intended to follow course 13. It deals with a detailed critical analysis of some of the masterpieces of music-literature (opera, oratorio, symphony, pianoforte, and song). Performance of the works, in whole or in part, forms the basis for aural criticism and a thorough acquaintance with the works themselves. *One unit-hour.*

Course 15 offers to those who are properly qualified an opportunity to study the larger choral works in weekly rehearsal with the Madison Choral Union. Entrance tests are made on quality and range of voice, correctness of ear and ability to read moderately easy music. *One unit-hour credit is allowed for the whole year.*

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A special course in the study of Methods of Teaching for the supervision of music in the public schools is given by Mr. Herman E. Owen.

Students may be admitted to advanced courses on examination.

Special students may substitute private lessons in piano playing or singing for one or more studies on recommendation of the Professor of Music, but without credit toward graduation, except as specified under course 8. See the statement of the School of Music. (See Index.)

Classes meet in the music lecture room, Assembly Hall.

Students who desire to become connected with the University Military Band should confer with the leader.

Primarily for Undergraduates

1. Musical Theory. *Throughout the year; M., W., at* 5. Mr. BREDIN.
2. Elementary Harmony. *Throughout the year; Tu., Th., at* 4. Professor COLE.
3. Advanced Harmony. *Throughout the year; M., W., at* 11. Professor COLE.
4. Counterpoint. *First semester; hours to be arranged upon consultation.* Emeritus Professor PARKER.
5. Double Counterpoint and Fugue. *Second semester; hours to be arranged upon consultation.* Emeritus Professor PARKER.
6. Musical Composition. *Throughout the year; M., W., at* 9, *subject to change.* Professor COLE.
7. History of Music. Lectures. *Throughout the year; Tu., Th., at* 3. Emeritus Professor PARKER.
8. Advanced Piano Playing, Singing, Organ, or Violin. Senior and junior years only. Hours and credit to be arranged with the instructor and Director of the School of Music, but not to exceed a total of ten semester hours.
9. Public School Music. *Throughout the year; M., W., at* 4, *subject to change.* Mr. OWEN.
10. Advanced Study in Orchestral Music. *Throughout the year; W., at* 7 P. M. Mr. OWEN.
11. Conducting. *Throughout the year; S. at* 10. Mr. OWEN.
12. Principles of Music Education. Lectures. *S. at* 11. Professor O'SHEA, Associate Professor ELLIOTT, Assistant Professor TRESSLER, Dr. DEARBORN, and Mr. OWEN.

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13. Musical Appreciation. *First semester; Tu., Th., at* 11. Professor COLE.
14. Masterpieces of Music. *Second semester; Tu., Th., at* 11. Professor COLE.
15. Choral Music. *Once a week throughout the year; Tu., at* 7:30 P. M. Professor COLE.

THE COURSE IN COMMERCE

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
W. A. SCOTT, Ph. D., Director. Professor of Political Economy.

T. S. ADAMS, Ph. D., Associate Professor of Political Economy.
D. E. BURCHELL, A. M., Professor of Business Administration.
A. L. P. DENNIS, Ph. D., Professor of European History.
C. R. FISH, Ph. D., Assistant Professor of American History.
S. W. GILMAN, LL. B., Assistant Professor of Business Administration.
VICTOR LENHER, Ph. D., Associate Professor of Chemistry.
M. O. LORENZ, Ph. D., Assistant Professor of Political Economy.
B. H. MEYER, Ph. D., Professor of Political Economy.
P. S. REINSCH, Ph. D., Professor of Political Science.
E. C. L. C. ROEDDER, Ph. D., Assistant Professor of German Philology.
B. W. SNOW, Ph. D., Professor of Physics.
S. E. SPARLING, Ph. D., Assistant Professor of Political Science.
H. C. TAYLOR, Ph. D., Associate Professor of Political Economy.
FLORENCE E. ALLEN, Ph. D., Instructor in Mathematics.
G. D. BIRKHOFF, Ph. D., Instructor in Mathematics.
C. D. COOL, A. M., Instructor in Romance Languages.
E. P. R. DUVAL, B. A., Instructor in Mathematics.
J. F. HAUSSMANN, Ph. D., Instructor in German.
L. R. HERRICK, B. S., Instructor in French.
R. H. HESS, M. L., Assistant in Political Economy.
O. L. KEITH, A. M., Instructor in Romance Languages.
F. LAMOTTE, M. S., Assistant in Romance Languages.

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L. MARTIN, B. A., Instructor in Geology.
W. H. PRICE, Ph. D., Instructor in Political Economy.
EDUARD PROKOSCH, Ph. D., Instructor in German.
W. J. SHEPARD, A. B., Instructor in Political Science.
C. D. ZDANOWICZ, Ph. D., Instructor in Romance Languages.

THE PURPOSE OF THE COURSE

The purpose of this course is to supply facilities for the training of young men who desire to enter business careers, especially in such fields as domestic and foreign commerce and banking or branches of the public service, like the consular, in which knowledge of business is essential. It has been established in the belief that in order to achieve the largest measure of success at the present time, and in order properly to perform his duties to himself and to society, the business man should have not only a college education, but a course of study adapted to his peculiar needs. Justification for this belief may be found in the magnitude, complexity, and rapidly changing character of modern industrial processes, and in the unfitness of the traditional college course properly to equip a young man for the most efficient work in this field. The modern business man needs training of the highest order, combined with a knowledge of the mathematical, physical, and social sciences, and of their applications to commerce and industry, and a thorough command of his mother tongue and of at least one modern foreign language. Fortunately the development of historical, political, economic and scientific studies in recent times, and improvement in our educational methods, has made possible the construction of a course of study which combines the necessary elements.

It is not the purpose of this course to graduate young men equipped with all the technical knowledge needed for the performance of the manifold processes of industry and commerce. It is well understood that such knowledge must be acquired by actual experience in connection with business institutions. It is our purpose, however, to give our students such training and such knowledge of the structure and workings of the industrial organism as will enable them to learn the technique of any concern in much less time than would otherwise be required, and to attain a degree of industrial and social efficiency which is impossible for the average man who goes into business without such preliminary training.

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REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. (See Index under Entrance Requirements.)

Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for the degree, will be admitted to any of the studies of this course for which they are properly prepared.

PLAN OF THE COURSE OF STUDY

I. STUDIES REQUIRED OF ALL

These occupy nearly the whole of the student's time in the freshman and sophomore years, and about one-half of his time in the junior and senior year.

With two exceptions the studies of the first two years are those which have long been considered as fundamental and necessary in a liberal education, namely: natural science, mathematics, English, foreign languages, history, and economics. The peculiarity of the course in these years consists in the selection made from the numerous studies available under these different heads. In natural science, physical geography and the physiography of the United States have been included because they are basal to economic geography; in mathematics, algebra and its commercial applications have been selected because of their practical utility in various branches of industry and commerce; the course in English is the general training course required of all freshmen in the University; the foreign language courses devote special attention to the acquisition of a speaking and writing command of these languages, though the study of literature is by no means neglected; the course in history is selected both for its value as a training in the use of the historical method, and because it aids in laying a proper foundation for various other courses; elementary economics and commercial geography are basal to a large number of courses in applied economics offered in the junior and senior years.

The required work of the junior and senior years includes continuation courses in the modern languages, money and banking,

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transportation, commercial law, and business administration. These are designed to complete the student's survey of the structure and workings of the modern industrial organism, to supplement the specialized studies of his elective group, to increase his breadth of vision, and to train him in the investigation and interpretation of the kinds of facts that he must deal with in after life. The course in business administration serves the additional purpose of testing the student's ability to perform the various duties for which he is being trained; for example, to carry on correspondence in English and the foreign language he is studying, to make the mathematical calculations required in the various business situations placed before him, to use business forms and papers, rate sheets, etc., to devise systems of accounting, and actually to keep the accounts of the various enterprises suggested; in short, to put to actual use the knowledge and the training derived from the courses he has been pursuing.

II. ELECTIVE GROUPS

These occupy from three to five hours per week during the junior and senior years, and furnish opportunity for a more thorough study of the various branches of commerce and industry. The following groups are at present available, and others may be arranged on consultation with the Director:

Banking and Finance

Junior Year: Public Finance, 3; Corporation Economics, 2.

Senior Year: Corporation Finance and Securities, 2; The Money Market, 3; Financial History of the United States, 3; Seminary, 2; Thesis, 4.

Transportation

Junior Year: Statistics, 3; Corporation Economics, 2.

Senior Year: Corporation Finance and Securities, 2; Special Problems in Transportation, 2; Thesis, 4.

Manufacturing Industries

Junior Year: Manufacturing Industries, 4; Corporation Economics, 2; Seminary, 2.

Senior Year: Manufacturing Industries, 1; Corporation Finance and Securities, 2; Seminary, 2; Thesis, 4.

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Agricultural Industries

Junior Year: Statistics, 3; Elements of Agricultural Economics, 2; Historical and Comparative Agriculture, 2.

Senior Year: Agricultural Industries, 4; Soil Physiography, 3; Thesis, 4.

The Consular Service

Junior Year: Colonial Politics, 3; Contemporary International Politics, 3; History of Diplomacy, 4.

Senior Year: International Law, 3; Federal Administration, 3; Consular Service, 2; Thesis, 4.

III. FREE ELECTIVES

From thirty-two to forty semester hours are available for free electives. These may be chosen from any of the courses in the University which the student is fitted to enter, but it is expected that his choice will be guided by the desire to round out and broaden the course he is pursuing.

ARRANGEMENT OF STUDIES

FRESHMAN YEAR

Physical Geography, 3, (first semester); Economic Geography, 3, (second semester); German, French, or Spanish, 4; English, 3; Mathematics, 3; History, 3; Gymnastics and Drill.

SOPHOMORE YEAR

Economic Geography, 3, (first semester); Foreign language (continued), 2, or second language, 4; Chemistry or Physics, 5; Elementary Economics, 3, (first semester), Money and Banking, 3, or Transportation, 3, (second semester); Free Electives, 2 to 0; Gymnastics, Drill, and Business Administration.

JUNIOR YEAR

Foreign language (continued), 2, or second language (if not taken in sophomore year), 4; Elective Group, 3; Free Electives, 8 or 10; Business Administration.

SENIOR YEAR

Foreign language (Continued), 2; Commercial Law, 3; Elective Group and Thesis, 4 to 6; Free Electives, 4 to 6; Business Administration.

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DEPARTMENTS OF INSTRUCTION

Political Economy

For detailed information regarding these courses see Index.

1. The Elements of Economic Science. *Repeated each semester; M., W., F., at* 8, 9, *and* 10. Professor COMMONS, Associate Professor TAYLOR, Dr. PRICE, Mr. COULTER, and Mr. HESS.

3. Elements of Public Finance. *First semester; M., W., F., at* 9. Associate Professor ADAMS.

5. The Elements of Money and Banking. *Repeated each semester; M., W., F., at* 9. Professor SCOTT and Mr. HESS.

7a. Economic Geography. A general survey. *Second semester; M., W., F., at* 8 *and* 9. Associate Professor TAYLOR.

7b. Economic Geography of the United States. *First semester; M., W., F., at* 8. Associate Professor TAYLOR.

8. Business Administration. *Throughout three years, two hours a week; or two years, three hours a week.* Assistant Professor GILMAN and assistants.

9. Commercial Law. Open only to juniors and seniors of suitable preparation. *Throughout the year; three times a week.* Assistant Professor GILMAN.

18. Senior Seminaries. For thesis students. Professors SCOTT and BURCHELL, Associate Professors ADAMS and TAYLOR, Assistant Professor GILMAN and Dr. PRICE.

26. The Elements of Agricultural Economics. *Second semester; Tu., Th., at* 12. Associate Professor TAYLOR.

27. Historical and Comparative Agriculture. *First semester; Tu., Th., at* 12. Associate Professor TAYLOR.

28. Agricultural Industries. *Second semester; Tu., Th., at* 10. Associate Professor TAYLOR.

29. Manufacturing Industries. Must be preceded by courses 7a and 7b. Given in three groups, A., B., and C. *First semester; M., Tu., W., Th., F., at* 10. Professor BURCHELL.

30. Elements of Statistics. Two lectures and two hours laboratory work a week, for which a credit of three hours is given. *First semester; W., F., at* 12. *Laboratory hours to be arranged.* Associate Professor ADAMS.

31. Economic Statistics. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Associate Professor ADAMS.

33. Financial History of the United States. *Second semester; M., W., F., at* 8. Professor SCOTT.

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34. Corporation Finance and Securities. Lectures and assigned reading. *First semester; Tu., Th., at* 8. Dr. PRICE.

34a. The Money Market. Lectures and practical exercises in the interpretation of money market records and documents. *First semester; Tu., Th., at* 12. *Hour for quiz to be arranged.* Professor SCOTT.

35. Transportation and Communication. *Second semester; M., W., F., at* 8. Professor MEYER and Mr. HESS.

37. Corporation Economics. *Second semester; Tu., Th., at* 8. Dr. PRICE.

38a. Insurance Economics. *First semester; Tu., Th., at* 11. Dr. PRICE.

38b. Life Insurance. *Second semester; Tu., Th., at* 11. Dr. PRICE.

Political Science

17. Federal Administration. *Second semester; M., W., F., at* 9. Assistant Professor SPARLING.

18. International Law. *Throughout the year; Tu., Th., at* 11. Professor REINSCH.

20. Contemporary International Politics. *Second semester; M., W., F., at* 10. In connection with this course a series of public lectures on problems of international politics will be given. Professor REINSCH.

21. Colonial Politics. A study of the principal systems of colonial government. *First semester; M., W., F., at* 10. Mr. SHEPARD.

23. The Consular Service. *First semester; Tu., Th., at* 12. (Omitted in 1908-09.) Assistant Professor SPARLING.

31. Latin American Political Institutions. *First semester; Tu., Th., at* 12. Assistant Professor SPARLING.

History

For detailed information see Index.

4. History of the United States. A general survey, with emphasis on political history. This course, or an equivalent, must precede all advanced courses in American history.

4a. To the Presidency of Jackson. *First semester; M., W., F., at* 11. Assistant Professor FISH.

4b. From the Presidency of Jackson to the present time. *Second semester; M., W., F., at* 11. Assistant Professor FISH.

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5. English History. *Throughout the year; Tu., Th., at* 10 *and a third hour in sections of quiz work.* Professor DENNIS and assistants.

15. Diplomatic History of the United States. *Throughout the year; Tu., Th., at* 10. Assistant Professor FISH.

English

For detailed information see Index.

1. Freshman English. English prose style. Composition. *Three hours per week throughout the year.*

German

For detailed information see Index.

2C. Modern Prose, narrative and dramatic, and one classical drama. *Throughout the year; Tu., W., Th., F., at* 9. Assistant Professor ROEDDER.

3C. Reading, Conversation, and Composition. *Throughout the year; Tu., Th., at* 11. Dr. HAUSSMANN.

4C. A continuation of the work of the preceding year, the texts being chosen chiefly to illustrate German history, political, cultural, and literary. *Tu., Th., at* 9. Dr. HAUSSMANN.

5C. The work of this course will be of a strictly practical character, being devoted chiefly to oral and written work on topics connected with the actual demands of a commercial career. *Throughout the year; Tu., Th., at* 11. Dr. PROKOSCH.

French

For detailed information see Index.

6C. Elementary Course. *Throughout the year; Tu., W., Th., F., at* 9. Mr. HERRICK.

17C. Conversation, Composition, and Reading. *Throughout the year; Tu., Th., at* 11. Mr. HERRICK.

29C. Conversation, Commercial Correspondence, and Reading. *Twice a week throughout the year.* Mr. HERRICK.

30C. Conversation, Commercial Correspondence, and Reading. A continuation of course 29C. *Twice a week throughout the year.* Mr. HERRICK.

Spanish

2EC. Elementary. Giese's *First Spanish Book*, and other easy prose. *Four hours a week throughout the year; in three*

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sections; at 8 *and* 9. Dr. ZDANOWICZ, Mr. KEITH and Mr. LAMOTTE.

6C. Conversation, Composition, and Reading. Special attention is devoted to the vocabulary of everyday life. *Throughout the year; Tu., Th., at* 11. Mr. COOL.

7C. Conversation, Commercial Correspondence, and Reading. Special attention is devoted to the vocabulary of commerce. *Throughout the year; W., F., at* 11. Mr. COOL.

8C. Conversation, Commercial Correspondence, and Reading. Continuation of course 7C. *Twice a week throughout the year.* Mr. COOL.

Algebra

1. Algebra. Theory of indices, logarithms, limits, arrangements and groups, and progressions. *First semester; three times a week.* Dr. BIRKHOFF and Mr. DUVAL.

7. Commercial Algebra. Theory of probabilities, series, and the application of mathematics to insurance and finance. *Second semester; three times a week.* Dr. ALLEN, Dr. BIRKHOFF and Mr. DUVAL.

Physics

1. General Lectures and Introductory Laboratory Practice. *Lectures; M., Tu., W., Th., at* 12. *One recitation a week at an hour to be arranged. Laboratory practice twice a week.* Professor SNOW and assistants.

Chemistry

7. General Chemistry. Lectures and laboratory work. *Five hours a week throughout the year.* Associate Professor LENHER and assistants.

Geology

For detailed information see Index.

4a. Physical Geography. *First semester; M., W., F., at* 10. Mr. MARTIN.

COMMERCIAL COURSE FOR ENGINEERS

The College of Engineering offers a five-year course which permits a combination of the studies of the various engineering courses with the essential studies of the Course in Commerce. Students making this combination will take the engineering

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studies as prescribed, for which see Index under Engineering, and the studies of the Course in Commerce as follows:

FRESHMAN YEAR

Physical Geography and Economic Geography, 3.

SOPHOMORE YEAR

Economic Geography, 3; Elementary Economics *(second semester)*, 3.

JUNIOR YEAR

Money and Banking *(first semester)* and Transportation *(second semester)*, 3; Elective Group, 3.

SENIOR YEAR

Elective Group, 3; Business Administration, 3.

FIFTH YEAR

Business Administration, 3; Commercial Law, 3.

At the end of the fifth year the appropriate engineering degree will be conferred. Students who so desire may, during the senior year, write a thesis in connection with their elective group in Commerce, and receive the degree of B. S., General Engineering Course.

GRADUATE STUDENTS

Graduates of this or other colleges and universities of good standing will be admitted to this course, and arrangements will be made so that they may take its peculiar studies in two years, or in less time, provided they have already pursued some of them in their undergraduate courses.

PREPARATION OF TEACHERS

Students who wish to prepare themselves to teach commercial subjects in secondary schools will be aided in so arranging their elective work as to attain this end. Special facilities for pedagogical practice will be given such students in connection with the course in Business Administration, and work in addition to that prescribed may be arranged in subjects of especial importance to teachers.

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SPECIAL LECTURERS

Special lectures are provided from time to time for the purpose of acquainting students with present business conditions and opportunities. So far as possible, men representing the chief business enterprises of the United States are secured for this purpose.

REQUIREMENT FOR GRADUATION

Students who have successfully completed the above course of study will be admitted to graduation and will receive the degree of Bachelor of Arts.

CHARGES AND FEES

All fees are required to be paid strictly in advance at the beginning of each semester before cards are issued entitling the student to admission to classes.

Tuition is free for all students from the State of Wisconsin.

Tuition for non-resident students, per semester.....$15 00
Incidental fee for all students, per semester..... 10 00
Gymnasium fee for all men students, per semester..... 1 00

Communications regarding this Course should be addressed to W. D. Hiestand, Registrar, or to William A. Scott, Director.

THE COURSE IN PHARMACY

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
E. A. BIRGE, Ph. D., Dean of the College of Letters and Science.
EDWARD KREMERS, Ph. G., Ph. D., Director. Professor of Pharmaceutical Chemistry.

C. E. ALLEN, Ph. D., Associate Professor of Botany.
W. W. DANIELLS, M. S., Sc. D., Emeritus Professor of Chemistry.
R. H. DENNISTON, Ph. G., Ph. D., Assistant Professor of Pharmaceutical Botany and Curator of the Drug Cabinet.
RICHARD FISCHER, Ph. C., Ph. D., Assistant Professor of Pharmacy.
W. D. FROST, Ph. D., Associate Professor of Bacteriology.

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R. A. HARPER, Ph. D., Professor of Botany.
LOUIS KAHLENBERG, Ph. D., Professor of Chemistry.
VICTOR LENHER, Ph. D., Professor of Chemistry.
B. W. SNOW, Ph. D., Professor of Physics.
J. H. WALTON, Ph. D., Assistant Professor of Chemistry.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
A. G. DUMEZ, Ph. G., B. S., Instructor in Pharmaceutical Chemistry.
E. G. ARZBERGER, Ph. B., Assistant in Botany.
C. E. LEWIS, Ph. D., Instructor in Botany.
R. L. SCHULZ, Ph. G., Assistant in Pharmaceutical Chemistry.
M. E. TITUS, Ph. G., Laboratory Assistant in Pharmacy.

THE OBJECT OF THE COURSE

The prime object of the Course in Pharmacy is to furnish a thoroughly scientific foundation for the pursuit of the profession of pharmacy. The elements of the fundamental natural sciences, chemistry, botany, or biology, and physics must first be studied before their application to pharmacy can rationally be considered. This is as true for pharmacy as for any other applied science or art. In pursuing these general studies the pharmacy students have the advantage of close association with students from other courses. This implies that in these studies they must be able to keep abreast with students who are graduates of accredited high schools. The best preparation for college, therefore, which the prospective pharmacy student should seek is not that of the shops, but that of a good high school or academy of like rank. The University does not demand practical experience for admission to the courses in pharmacy, but desires such preparation as will best fit for college or university work.

The general study of these fundamental sciences is followed by more or less specialized courses. General chemistry, inorganic and organic, qualitative and quantitative analysis, are followed by pharmaceutical chemistry, and applied chemical analysis; general botany by vegetable histology and anatomy of drugs; general physics by pharmaceutical technique. These somewhat specialized studies, in turn, not only lay the foundation for the study of the more strictly applied courses in practical pharmacy and pharmacognosy, but also prepare the student for thesis work.

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The student who can spend only two years at the University is compelled to take up the more technical studies of his course before he has laid a satisfactory foundation. Such a compromise is outlined under the caption, Courses of Study. The three-year student, as a rule, finds time to pursue other studies besides those outlined above, *e. g.*, German, physiology, or bacteriology, etc. The four-year student has the great advantage of supplementing his high school preparation during the freshman and sophomore years by acquiring a reading knowledge of German and French, and by the study of university mathematics, all of which studies are of the greatest importance when the more advanced work of the natural sciences is taken up during the junior and senior years.

Special attention is called to the four-year course offered to graduates of accredited high schools. This course was created in order to accommodate those students who desire to obtain a general scientific education and to include in their course the pharmaceutical studies, and with the hope of stimulating a broader pharmaceutical education. For the more applied courses special laboratories have been equipped.

Like the sister profession, medicine, pharmacy, is in need, not only of the general practitioner, but also of the specialist. To meet the demands of such, the University offers graduate courses. Graduates who desire to prepare themselves as chemists for manufacturing establishments, as analytical, food or sanitary chemists, or as bacteriologists, will find that the graduate work in the Course in Pharmacy, as well as the other departments of the University, offers excellent opportunities for advanced and more specialized study. Special lines of research can also be pursued in various departments by those who desire to work for a higher degree. The attention of advanced students is especially called to the graduate work. (See Index.)

Laboratories

A description of the various general laboratories of the University may be found by reference to the Index.

THE PHARMACEUTICAL LABORATORIES. These laboratories are located in the west wing of the second floor and the east wing of the third floor of the new Chemistry Building. Their equipment is similar to that of the other laboratories in the same building.

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Collections

The collections of the University, including the drug cabinet, are described elsewhere. See Index under Collections.

Libraries

For a statement as to general library facilities at the University and in the city of Madison, see Index under Library. The department library for ready reference is now housed in the library of the new Chemistry Building, a large, well lighted and equipped room on the third floor, unusually well supplied with reference works and the best periodicals. The other department libraries, as well as the general library, are all on the same campus and, therefore, easy of access.

Terms of Admission

The requirements for admission to the several colleges of the University are described on previous pages. See Index under Admission.

The special requirements for admission to the two-year pharmacy course are herewith repeated.

I. Graduates from high schools are admitted without examination and without practical experience in a drug store.

II. Non-graduates are admitted if they comply with the following requirements:—

1. They must be at least eighteen years of age.

2. They must present satisfactory certificates of *at least* one year's attendance from some standard high school, or its equivalent from a similar educational institution.

3. The time intervening between the secondary education and the college course should have been spent in a drug store where physicians' prescriptions are regularly compounded.

Degrees

The first degrees given in pharmacy are that of *Graduate in Pharmacy*, upon completion of the two-year course, and that of *Bachelor of Science, Pharmacy Course*, conferred upon candidates who have successfully met the requirements of the four-year course.

The degree of *Master of Pharmacy* is conferred as a second degree upon graduates in pharmacy.

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The degrees of *Master of Science* and *Doctor of Philosophy*, are conferred as higher degrees upon candidates who have a baccalaureate degree.

Fees and Expenses

The tuition and laboratory fees and an estimate of expenses for board and lodging are given on previous pages. (See Index.)

COURSES OF STUDY

Two-Year Course

FIRST YEAR. FIRST SEMESTER

Chemistry 3*. General Chemistry. The laboratory work accompanying this course is especially designed for pharmacy students. *Eight unit-hours.* Professor KAHLENBERG, Assistant Professor WALTON, and Mr. DUMEZ.

Biology 1. General Biology. Introductory to both botany and zoology, and required as preliminary to all work in either department. *Two recitations, or lectures, and eight hours' laboratory work a week.* Professor HARPER, Professor ALLEN, and assistants.

Botany 35. The Collection and Commerce of Crude Drugs. Laboratory and field work supplemented by lectures and recitations. *One unit-hour.* Assistant Professor DENNISTON.

Pharmacy 1. Laboratory Technique. The principles and practice of pharmaceutical operations, such as comminution, expression, decantation, filtration, maceration, percolation, diffusion, dialysis, crystallization and precipitation. *Three unit-hours. W., F., at* 11. Assistant Professor FISCHER and Mr. DUMEZ.

FIRST YEAR. SECOND SEMESTER

Chemistry 3. General Chemistry continued as a five and one-half unit-hour study. The laboratory work in this semester will consist of qualitative analysis.

Chemistry 20b. Organic Chemistry for Pharmacy students. Two unit-hours. Recitations and laboratory work. Dr. KOELKER and Mr. DUMEZ.

Botany 30. Morphology and Classification of the Flowering Plants. An elementary course designed primarily for students in Pharmacy. The life histories and ecology of seed plants, with

*The figures refer to the numbers of the courses as given in the statements under Departments of Instruction.

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a comparative study of the structure of the principal families and the identification of common species. Field work will be an important feature. Excursions on Saturdays. *M., Tu., W., Th., F.*, 8 *to* 10. Assistant Professor DENNISTON and Mr. ARZBERGER.

Pharmacy 1. Laboratory Technique. Continuation of the work of the first semester. (See above.)

SECOND YEAR. FIRST SEMESTER

Chemistry 6. Advanced Inorganic Chemistry. Lectures and recitations, *Tu., Th., F., at* 10; *laboratory work daily.* Professor KREMERS and Mr. SCHULZ.

Chemistry 40. Plant Chemistry. As a three unit-hour study supplementary to pharmacognosy. Recitations, *M., at* 10; *two laboratory periods.* Professor KREMERS and Mr. SCHULZ.

Botany 5. Vegetable Histology. A systematic study of the tissues of the phanerogams and ferns. Use of reagents and stains, section cutting and mounting. Assistant Professor DENNISTON and Dr. LEWIS.

Botany 32. Pharmacognosy. This course presents to the student the main facts of the natural history of drugs, and the plants producing them. *Twice a week.* Assistant Professor DENNISTON.

Pharmacy 2. Pharmaceutical Technology. The study and manufacture of galenical and other preparations: waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also of pills, suppositories, ointments, plasters, etc. Lectures and recitations, *Tu., Th., at* 11; *three laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

SECOND YEAR. SECOND SEMESTER

Chemistry 27. Advanced Organic Chemistry. Lectures and recitations, *Tu., Th., F., at* 10; *laboratory work daily.* Professor KREMERS and Mr. SCHULZ.

Chemistry 40. Plant Chemistry. Continued from first semester. Professor KREMERS and Mr. SCHULZ.

Chemistry 45. Alkaloid Assay. *One unit-hour credit.* Assistant Professor FISCHER and Mr. TITUS.

Botany 31. Microscopical Examination of Drugs and Food Products. The object of this course is to study and illustrate the methods of identifying powdered drugs and food products and detecting adulterations. *Three unit-hours credit.* Assistant Professor DENNISTON.

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Botany 32. Pharmacognosy. Continuation of first semester's work. Assistant Professor DENNISTON.

Pharmacy 3. Prescription Practice. The study of the prescription; practice in the compounding of physicians' prescriptions; also the study of physical, chemical and therapeutical incompatibilities. *Lectures and recitations, Tu., Th., at* 11; *two laboratory periods.* Assistant Professor FISCHER and Mr. TITUS.

Four-Year Course

Students who desire to include pharmaceutical studies as a part of their general college education will have to elect the prerequisite studies enumerated below to accomplish this end. Such a course, if to lead to the degree of *Bachelor of Science, Pharmacy Course*, must include courses 1, 2, and 3 in Pharmacy, and course 22 in Botany.

Basal sciences: Chemistry 3, 15, 20b or their equivalents. Botany 1, and 20 or its equivalent. Physics 1. These should be taken during the first and second years.

Advanced sciences: Chemistry 6 and 27. Botany 5 and 21. These courses should be taken during the third year, in order that the courses in Pharmacy and Pharmacognosy mentioned above may be taken during the fourth year.

The language requirements of this course are English 1, French 1, and German 2S, which should be taken during the first and second years.

The major study and thesis may be taken in chemistry, botany, pharmacy, or any department in which the student is sufficiently prepared to do such work. For the rules governing the major study and thesis see Index under Major Study.

Additional electives sufficient to make 120 unit-hours may be chosen upon consultation with the adviser for Pharmacy students.

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THE COURSE IN CHEMISTRY

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
LOUIS KAHLENBERG, Ph. D., Chairman, Professor of Chemistry.

C. E. ALLEN, Ph. D., Associate Professor of Botany.
S. M. BABCOCK, Ph. D., Professor of Agricultural Chemistry.
E. BLACKWELDER, B. A., Assistant Professor of Geology.
H. C. BRADLEY, Ph. D., Assistant Professor of Physiological Chemistry.
C. E. BURGESS, E. E., Professor of Applied Electrochemistry.
W. W. DANIELLS, Sc. D., Emeritus Professor of Chemistry.
R. H. DENNISTON, Ph. D., Assistant Professor of Botany.
J. C. DICKEERMAN, B. S., Assistant Professor of Chemical Engineering.
L. W. DOWLING, Ph. D., Assistant Professor of Mathematics.
J. ERLANGER, M. D., Professor of Physiology.
M. B. EVANS, Ph. D., Assistant Professor of German.
R. FISCHER, Ph. D., Chemist, Wisconsin Dairy and Food Commission.
W. D. FROST, Ph. D., Associate Professor of Bacteriology.
LUCY M. GAY, B. L., Assistant Professor of Romance Languages.
R. A. HARPER, Ph. D., Professor of Botany.
E. B. HART, B. S., Professor of Agricultural Chemistry.
E. G. HASTINGS, M. S., Assistant Professor of Bacteriology.
S. J. HOLMES, Ph. D., Assistant Professor of Zoology.
E. KREMERS, Ph. D., Professor of Pharmaceutical Chemistry.
C. K. LEITH, Ph. D., Professor of Geology.
V. LENHER, Ph. D., Professor of Chemistry.
J. D. PHILLIPS, B. S., Professor of Drawing.
M. P. RAVENEL, M. D., Professor of Bacteriology.
F. O. REED, Ph. D., Assistant Professor of Romance Languages.
E. B. SKINNER, Ph. D., Assistant Professor of Mathematics.
C. S. SLICHTER, M. S., Professor of Applied Mathematics.
H. A. SMITH, M. A., Professor of Romance Languages.
B. W. SNOW, Ph. D., Professor of Physics.
SUSAN A. STERLING, M. L., Assistant Professor of German.

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C. W. STODDART, M. A., Assistant Professor of Soils.
E. B. VAN VLECK, Ph. D., Professor of Mathematics.
J. H. WALTON, Ph. D., Assistant Professor of Chemistry.
A. R. WHITSON, B. S., Professor of Soils.
A. N. WINCHELL, Ph. D., Assistant Professor of Mineralogy and Petrology.
F. W. WOLL, Ph. D., Professor of Agricultural Chemistry.
J. T. BOWELS, B. S., Sanitary Chemist, Hygienic Laboratory.
R. K. BREWER, B. A., Assistant in Chemistry.
C. A. FULLER, Ph. D., Instructor in Bacteriology.
C. B. GATES, M. Ph., Assistant in Chemistry.
M. H. HAERTEL, Ph. D., Instructor in German.
R. D. HALL, Ph. D., Instructor in Chemistry.
C. W. HILL, M. A., Assistant in Chemistry.
A. R. JOHNSON, M. S., Assistant in Organic Chemistry.
E. R. JONES, B. S., Instructor in Soils.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
O. L. KOWALKE, B. S., Instructor in Chemical Engineering.
F. C. KRAUSKOPF, M. A., Instructor in Chemistry.
C. E. LEWIS, Ph. D., Instructor in Botany.
A. S. MCDANIEL, M. A., Instructor in Chemistry.
W. R. MOTT, B. S., Instructor in Chemistry.
C. A. TIBBALS, M. A., Instructor in Chemistry.
W. E. TOTTINGHAM, B. S., Instructor in Agricultural Chemistry.
O. P. WATTS, Ph. D., Instructor in Chemical Engineering.
W. G. WILCOX, M. A., Assistant in Chemistry.
E. WOLESENSKY, M. A., Assistant in Chemistry.

THE PURPOSE OF THE COURSE

The primary purpose of this course is to offer facilities for training young men who desire to become chemists. The demand for competent chemists has very greatly increased in recent years. Not only has there been a greater call for able teachers of chemistry for high schools, colleges and universities, but an unusual demand has arisen for chemists of ability for agricultural experiment stations, hygienic laboratories, health and sanitary departments of municipalities, food testing laboratories, and industries engaged in the preparation of foods and other articles of consumption, textile and other fabrics, metallurgical products, and building materials. The cause for this demand is readily dis-

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cerned. The growing realization that the best way to combat disease is to live under hygienic conditions and use wholesome food, proper clothing and shelter has made physiological chemists, food chemists, and sanitary chemists indispensable. The fact that careful study of the soil in its relation to the crops it is to produce has greatly increased both the quantity and quality of the yield of the land, and that a proper study of the breeding and feeding of animals raised on the farm has added very materially to the wealth and well-being of the nation, has made soil and agricultural chemists necessary. And again, since the exploitation of the more readily accessible resources of our country, such as its wealth in timber and minerals, for example, is fairly well accomplished, attention is naturally being directed more and more toward manufacturing articles from materials whose value is not obvious at sight, materials that have indeed often been discarded as worthless. It is in this work that the services of the analytical and industrial chemist are an absolute necessity. Naturally these demands for chemists have also resulted in an increased call for teachers of chemistry. Nor is the need of chemists of temporary character, for obviously activity in the various lines mentioned will grow of necessity and increase the demand for men skilled in chemistry. Indeed, in many of our industries it is already realized that it is necessary to have the service of a chemist continually in order to properly inspect the raw materials bought, to control and improve the process of manufacture so as to avoid waste of power and material, and to test the grade of the finished article.

It is not the purpose of this course to prepare men for each individual industry; for that would be well-nigh impossible, since it requires special practical experience to become proficient in any particular line of work. The aim is rather to give the student a training in the fundamental principles of chemistry and the cognate sciences, which, of course, also necessitates a proper grounding in mathematics, French and German. With this preparation he will readily be able to adapt himself to any special industry with which he may later on be connected.

REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. See Index under Admission.

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Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the course desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for a degree, will be admitted to any of the studies of this course for which they are properly prepared.

PLAN OF THE COURSE OF STUDY

Six courses of study have been outlined, namely, a general course, a course for industrial chemist, a course for agricultural chemist, a course for soil chemist, a course for physiological chemist, and a course for food chemist. The latter course is also well adapted for those fitting themselves for sanitary work in hygienic laboratories. The general course is intended for those desiring to become analytical chemists, and those that prefer a course relatively free from biological studies and work which is strictly applied in character. The first two courses are almost free from biological work, containing only a short course in bacteriology which it is extremely desirable that every chemist should have. The other four courses are primarily distinguished from the first two in that they contain a considerable amount of biology and consequently present less opportunity for further work in other lines.

The work of the first year is the same for all of the courses. It is therefore detailed in connection with the general course only. It will be observed that differentation in the various lines begins in the second year of the general course, the main difference being, as already stated, that biology is introduced in the last four courses.

In all the courses, general inorganic, analytical, organic and physical chemistry are required. Physics, mathematics consisting of trigonometry and analytical geometry, and a course in mechanical drawing are also required of all. The English is the regular course required of all freshmen in the College of Letters and Science. Both German and French are required; these languages must be pursued in not less than one year courses. A student coming prepared in but one of these languages would naturally continue work in that language during the freshman year. The equivalent of at least course 2S in German and course

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1 in French is required for graduation. The special courses required in connection with each of the six courses are selected because they are calculated to fit the student for the definite end in view. Each course contains a certain number of hours for free electives, and while freedom of election is not restricted, the student is strongly urged to choose his electives from subjects outside of the natural sciences.

In each of the courses, 144 unit-hours are required for graduation. As the work outlined is necessarily difficult in character, students would often find it advantageous to absolve a part of the required studies during one or more summer sessions.

COURSES OF STUDY

General Course

First year: General Chemistry, 5; Mathematics, 3; German or French, 4; English, 3; Mechanical Drawing, 3.

Second year: Quantitative Analysis, 6; German or French, 4; Physics, 5; Calculus or Mineralogy, 3; (first semester). Calculus or Bacteriology, 3; (second semester).

Third year: Organic Chemistry, 5; Physical Chemistry, 5; German or French, 4; Electives, 4.

Those that took calculus in the second year must take Mineralogy 3 in the first semester and Bacteriology 3 in the second semester, which leaves for them but one hour as elective for each semester.

Fourth year: *First semester.* Chemistry Thesis, 2; Water and Gas Analysis, 2; Proximate Organic Analysis, 3; History of Chemistry, 2; Electives, 3. *Second semester.* Chemistry Thesis, 2; Chemistry (elective), 5; Fire Assay, 2; Electives, 9.

Course for Industrial Chemist

The first and second years are the same as in the general course.

Third year: Organic Chemistry, 5; Physical Chemistry, 5; German or French, 4; Technical Fuel and Gas Analysis, 2; Electives, 2.

Fourth year: *First semester.* Chemistry Thesis, 2; Water Analysis, 1; Proximate Organic Analysis, 3; Industrial Chemistry, 3; History of Chemistry, 2; Electives, 4. *Second semester.* Chem-

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istry Thesis, 2; Chemical Machinery, 2; Fire Assays, 2; Bacteriology, 3; Chemical Manufactures, 5; Electives, 4.

Course for Agricultural Chemist

Second year: Quantitative Analysis, 4; German or French, 4; Biology, 5; Physics, 5.

Third year: *First semester.* German or French, 4; Organic Chemistry, 5; Bacteriology, 3; Electives, 6. *Second semester.* German or French, 4; Organic Chemistry, 5; Agricultural Chemistry, 5; Agricultural Bacteriology, 3 or 5, or Electives, 4.

Fourth year: *First semester.* Physical Chemistry, 5; Agricultural Chemistry, 5; Agricultural Chemistry Thesis, 2; Electives, 6. *Second semester.* Physical Chemistry, 5; Soils, 5; Agricultural Chemistry Thesis, 2; Dairy Chemistry, 3; Electives, 3.

Course for Soil Chemist

Second year: *First semester.* Quantitative Analysis, 6; German or French, 4; Physics, 5; Bacteriology, 3. *Second semester.* Quantitative Analysis, 5; Soils, 5; Physics, 5; Agricultural Bacteriology, 3.

Third year: *First semester.* German or French, 4; Organic Chemistry, 5; Soil Chemistry, 4; Systematic Botany, 2; Electives, 3. *Second semester.* German or French, 4; Organic Chemistry, 5; Soil Chemistry, 4; Mineralogy, 3; Electives, 2.

Fourth year: *First semester.* Soils Thesis, 2; Physical Chemistry, 5; History of Chemistry, 2; Geology, 5; Electives, 4. *Second semester.* Soils Thesis, 2; Physical Chemistry, 5; Soil Physics, 2; Agricultural Chemistry, 5; Electives, 4.

Course for Physiological Chemist

Second year: Same as for agricultural chemist.

Third year: *First semester.* German or French, 4; Organic Chemistry, 6; Physiology, 3; Physical Chemistry, 5. *Second semester.* German or French, 4; Organic Chemistry, 5; Physiological Chemistry, 4; Physical Chemistry, 5.

Fourth year: *First semester.* Bacteriology, 5; Advanced Physiological Chemistry, 4; Toxicology, 3; Physiological Chemistry Thesis, 2; Electives, 4. *Second semester.* Bacteriology, 5; Seminary Physiological Chemistry, 1; Histology of Foods, 2;

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Chemistry of Foods, 5; Physiological Chemistry Thesis, 2; Electives, 3.

Course for Sanitary Chemist or Food Chemist

Second year: Same as for agricultural chemist, except that in the second semester Biology 5 is replaced by Bacteriology 3 and Biology of Water Supplies 3.

Third year: *First semester.* German or French, 4; Organic Chemistry, 6; Vegetable Histology, 3; Physical Chemistry, 5. *Second semester.* German or French, 4; Organic Chemistry, 6; Microscopic Examination of Foods and Drugs, 3; Physical Chemistry, 5.

Fourth year: *First semester.* Thesis in Foods or Sanitary Chemistry, 2; Water and Gas Analysis, 2; Proximate Organic Analysis, 3; Toxicology, 3; History of Chemistry, 2; Electives, 6. *Second semester.* Thesis in Food or Sanitary Chemistry, 2; Food Chemistry, 5; Physiological Chemistry, 4; Elective, 7.

DEPARTMENTS OF INSTRUCTION

Chemistry

For detailed information regarding these courses see Index.

1. General Chemistry, including Qualitative Analysis. *Full study throughout the year.* Professor KAHLENBERG, Assistant Professor WALTON, and assistants.
4. Thesis. Work for the baccalaureate thesis may be arranged in any line of chemistry in which the student has sufficient preparation. *Credit two hours per semester.*
7. History of Chemistry. *Two lectures or recitations per week during the first semester.* Professor KREMERS.
11. Quantitative Analysis. *Laboratory course accompanied by weekly lectures.* Professor LENHER, Dr. HALL, and Mr. MOTT.
12. Quantitative Analysis. An advanced laboratory course. Professor LENHER.
13. Gas Analysis. *First semester.* Dr. HALL.
14. Water Analysis. *First semester.* Dr. HALL.
19. Proximate Organic Analysis. *Three hours study. First semester.* Assistant Professor FISCHER.
20. Organic Chemistry. Lectures and laboratory work. *Full study throughout the year.* Dr. KOELKER, and Mr. JOHNSON.

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30. Physical Chemistry. Lectures and laboratory work. *Full study throughout the year. Lectures, Tu., Th., at* 8. *Three periods of laboratory work per week.* Professor KAHLENBERG.

46. Chemistry of Foods and their Adulterations. *Full study during the second semester.* Assistant Professor FISCHER.

50. Assaying. *Two hours study during the second semester.* Professor LENHER, and Mr. TIBBALS.

Chemical Technology

For detailed information regarding these courses see Index.

1. Chemical Machinery and Appliances. *Two lectures per week during the second semester.* Professor BURGESS.

2. Technical Fuel, Gas and Oil Analysis. *Two periods of laboratory work per week during the first semester.* Assistant Professor DICKERMAN, and Mr. KOWALKE.

4. Chemical Manufacture. Laboratory course. *Full study during the second semester.* Assistant Professor DICKERMAN, and Mr. KOWALKE.

5. Industrial Chemistry. *Three lectures or recitations per week during the first semester.* Assistant Professor DICKERMAN.

Agricultural Chemistry

For detailed information regarding these courses see Index.

1. Agricultural Chemistry. *Second semester. Lectures, Tu., Th., at* 9. Professor HART.

2. Agricultural Analysis. *Two three-hour laboratory periods per week. Tu., Th.,* 2 *to* 5. *Second semester.* Mr. TOTTINGHAM.

4. Dairy Chemistry. *Lectures, M., at* 9. *Laboratory work, Tu., Th.,* 2 *to* 5. *Three hours study during the second semester.* Professor HART, and Mr. TOTTINGHAM.

5. Animal Chemistry. *Lectures, F., S., at* 11; *and two three-hour periods of laboratory work per week. Full study during the first semester.* Professor HART, and Dr. MCCOLLUM.

9. Thesis in Agricultural Chemistry. *Two hours study throughout the year.* Professor HART, and Professor WOLL.

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Soils

For detailed information regarding these courses see Index.

1. Introductory Lecture and Laboratory Course. *Full study during the second semester.* Professor WHITSON.
2. Soil Analysis. A laboratory course. *Four hours study during the first semester.* Assistant Professor STODDART.
5. Thesis. *Two hours study throughout the year.* Professor WHITSON, and Assistant Professor STODDART.
21. Soil Chemistry. *Two lectures and two periods of laboratory work during the second semester.* Assistant Professor STODDART.
22. Soil Physics. *Two lectures per week during the second semester.* Mr. JONES.

Physiological Chemistry

For detailed information regarding these courses see Index.

4. Physiological Chemistry. Lectures and laboratory work. *Four hours study during the second semester.* Assistant Professor BRADLEY.
10. Advanced Physiological Chemistry. *Four hours study during the first semester.* Assistant Professor BRADLEY.
11. Toxicology. *Lectures and laboratory work during the first semester. Three hours study.* Assistant Professor BRADLEY.
12. Seminary in Physiological Chemistry. *One hour per week during the second semester.* Assistant Professor BRADLEY.

Mathematics

For detailed information see Index.

2. Trigonometry. *First semester; three times a week.* Assistant Professor SKINNER, and Mr. DUVAL.
3. Analytic Geometry. *Second semester; three times a week.* Dr. ALLEN.
5. Calculus. *Three times a week, throughout the year.* Professor VAN VLECK, and Assistant Professor DOWLING.

Mechanical Drawing

For detailed information see Index.

1. Elements of Drawing. *First semester; three two-hour periods per week.* Professor PHILLIPS, and assistants.

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2. Elements of Drawing. *Second semester; three two-hour periods per week.* Professor PHILLIPS, and assistants.

Physics

1. General Lectures and Introductory Laboratory Practice. Lectures: *M., Tu., W., Th., at* 12. *One recitation hour to be arranged. Laboratory work twice a week.* Professor SNOW, and assistants.

Geology

For detailed information see Index.

1. General Geology. *Full study during the first semester. Lectures at* 12. Professor LEITH, and Assistant Professor BLACKWELDER.
7. Short Course in Mineralogy. *Three hours study during the first semester.* Assistant Professor WINCHELL.

Biology

For detailed information see Index.

1. General Biology. The first semester is devoted to botany and the second semester to zoology. *Lectures, M., W., at* 3. *Four laboratory periods per week.* Professor HARPER, Assistant Professor HOLMES, and assistants.

Botany

For detailed information see Index.

5. Vegetable Histology. *Three hours study; first semester.* Assistant Professor DENNISTON.
20. Systematic Botany. *Two hours study during the first semester.* Professor HARPER, and Dr. LEWIS.
21. Microscopic Examination of Foods and Drugs. *Three hours study; second semester.* Assistant Professor DENNISTON.

Home Economics

For detailed information see Index.

8. Histology of Foods. *Two hours study; second semester.* Assistant Professor DENNISTON.

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Bacteriology

For detailed information see Index.

1. General Bacteriology. *Three hours study second semester. Lectures, Tu., Th., at* 11. Associate Professor FROST.
2. Medical Bacteriology. *Full study during the first semester* Professor RAVENEL.
4. Topical Work in Bacteriology. *Full study during the second semester.* Professor RAVENEL, and Associate Professor FROST.
8. Biology of Water Supplies. *Three hours study; second semester.* Professor RAVENEL, Dr. FULLER, and Mr. BOWLES.
17. Agricultural Bacteriology. *Three hours study; second semester.* Professor RAVENEL, and Assistant Professor HASTINGS.

Physiology

For detailed information see Index.

5. Physiology. *Three hours study during the first semester.* Professor ERLANGER.

English

For detailed information see Index.

1. Freshman English. English prose style. Composition. *Three hours per week throughout the year.*

French

For detailed information see Index.

1. Elementary French. Grammar, reading and composition. *Four hours study throughout the year.* Assistant Professor REED, and instructors.
4. Elementary French. For students that have had the equivalent of one year of French in high schools. *Throughout the year. Tu., W., Th., F., at* 12. Mr. SCHLATTER.
10. Second Year French. Reading and grammar. *Three hours a week throughout the year.* Professor SMITH; Assistant Professors GAY, REED, and instructors.

German

For detailed information see Index.

1. Beginners' German. Grammar and easy readings with practice in speaking and writing. *Four hours a week throughout the year.* Assistant Professor EVANS.

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2S. Second Year German. *Throughout the year. Tu., W., Th., F., at* 11. Dr. HAERTEL.

3S. Scientific German. *Throughout the year. W., F., at* 9. Assistant Professor STERLING.

Information concerning additional courses in any of the departments of instruction may be found by referring to the Index.

LABORATORIES

A description of the various scientific laboratories of the University may be found by referring to the Index.

LIBRARIES

The general library facilities are described on p. 46. The various scientific departments have excellent reference libraries in connection with the laboratories. These departmental libraries contain those books and periodicals which are most frequently used. In chemistry and allied sciences the University offers most excellent library facilities.

REQUIREMENT FOR GRADUATION

Students who have successfully completed any of the above courses of study will be admitted to graduation from the University and will receive the degree of Bachelor of Science.

CHARGES AND FEES

All fees are required to be paid strictly in advance at the beginning of each semester before cards are issued entitling the student to admission to classes.

Tuition is free for all students from the State of Wisconsin.
Tuition for non-resident students, per semester.....$15 00
Incidental fee for all students, per semester..... 10 00
Gymnasium fee for all men students, per semester..... 1 00

For the fees to be paid in the various scientific laboratories see Index under Fees.

Communications regarding this Course should be addressed to W. D. Hiestand, Registrar.

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HOME ECONOMICS

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
CAROLINE L. HUNT, A. B., Director, and Professor of Home Economics.
ELLEN A. HUNTINGTON, A. B., Instructor in Household Economy.

LOUIS KAHLENBERG, Ph. D., Professor of Chemistry.
JOSEPH ERLANGER, M. D., Professor of Physiology.
RICHARD FISCHER, Ph. D., Chemist for the Wisconsin State Dairy and Food Commission.
W. D. FROST, Ph. D., Associate Professor of Bacteriology.
VICTOR LENHER, Ph. D., Associate Professor of Chemistry.
R. H. DENNISTON, Ph. D., Instructor in Botany.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
ARTHUR PEABODY, University Architect and Special Lecturer in Domestic Architecture.

The department of Home Economics has two purposes. The first is to offer elective courses which shall be available as a part of the general education of all the young women in the College of Letters and Science. For this purpose courses 1, 2, and 3 are offered. These courses, having no prerequisite in science, are open to all students. The second purpose is to offer a four-year course to those young women who wish to specialize in Home Economics. This course leads to the degree of Bachelor of Arts, and includes:—

1. The studies required of all regular students in the College of Letters and Science;
2. Prescribed courses in general science;
3. Special courses in Home Economics;
4. Free electives.

The course is outlined below. For a description of the courses in Home Economics, see Index under Home Economics.

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Requirements for Admission

The requirements for admission to this course are the same as for admission to the other courses in the College of Letters and Science. (See Index.)

OUTLINE OF THE COURSE OF STUDY

The number *in parenthesis* after a study indicates the number of credits given for the course.

Freshman Year

First Semester: English 1 (3), German 1 (4), Chemistry 1 (5), Mathematics 1 (3), Physical Training (2).

Second Semester: English 1 (3), German 1B (4), Chemistry 1 (5), Mathematics 2 (3), Physical Training (2).

Sophomore Year

First Semester: Chemistry 10 (3), German 2S (4), Food Materials 3 (5), Physiology 1 (3), Physical Training (2).

Second Semester: Chemistry 10 (3), German 2S (4), Food Materials 4 (3), Economics 1 (3), Electives (2), Physical Training (2).

Junior Year

First Semester: Chemistry of Foods (3), Bacteriology 1 (5), House Sanitation 1 (3), Biology 1 (4).

Second Semester: Chemistry 20 (5) or Electives (5), Bacteriology 9 (3), Household Economy 5 (2), House Decoration 2 (1), Biology 1 (4).

Senior Year

First Semester: Home Economics 10 (1), Thesis (2), Electives (12).

Second Semester: Home Economics 10 (1), Thesis (2), Home Economics 8 (2), Electives 6.

Students in Home Economics will take General Chemistry, Biology, Physiology, the first semester of Organic Chemistry, and the first semester of Bacteriology with the other college students. The analytical work in Chemistry, the second semester's work in Organic Chemistry, and the second semester's work in Bacteriology will be adapted to the special needs of the department. In order to give larger opportunity for electives than would other-

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wise be possible, the student is allowed to choose between Physics and Biology; but unless her preparation in the science not chosen has been exceptionally good she is advised to elect it at some time during her course.

For detailed information concerning this department address Caroline L. Hunt, South Hall, Madison, Wisconsin.

COURSES PREPARATORY TO JOURNALISM

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
WILLARD G. BLEYER, Ph. D., Chairman. Assistant Professor of English.

T. S. ADAMS, Ph. D., Associate Professor of Political Economy.
B. H. BODE, Ph. D., Assistant Professor of Philosophy.
D. E. BURCHELL, A. M., Professor of Business Administration.
W. B. CAIRNS, Ph. D., Assistant Professor of American Literature.
VICTOR COFFIN, Ph. D., Assistant Professor of European History.
J. R. COMMONS, A. M., Professor of Political Economy.
J. W. CUNLIFFE, D. Lit., Professor of English Literature.
A. L. P. DENNIS, Ph. D., Professor of European History.
R. E. N. DODGE, M. A., Assistant Professor of English.
R. T. ELY, Ph. D., LL. D., Professor of Political Economy.
C. R. FISH, Ph. D., Associate Professor of American History.
J. C. FREEMAN, LL. D., Professor of English Literature.
S. W. GILMAN, LL. B., Assistant Professor of Business Administration.
F. G. HUBBARD, Ph. D., Professor of the English Language.
JOSEPH JASTROW, Ph. D., Professor of Psychology.
CHARLES MCCARTHY, Ph. D., Lecturer in Political Science.
E. B. MCGILVARY, Ph. D., Professor of Philosophy.
D. C. MUNRO, A. M., Professor of European History.
J. B. PARKINSON, A. M., Professor of Constitutional Law.
J. F. A. PYRE, Ph. D., Assistant Professor of English Literature.
P. S. REINSCH, Ph. D., Professor of Political Science.
E. A. ROSS, Ph. D., Professor of Sociology.

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W. A. Scott, Ph. D., Professor of Political Economy.
R. B. Scott, B. L., Assistant Professor of Political Science.
G. C. Sellery, Ph. D., Associate Professor of European History.
F. C. Sharp, Ph. D., Professor of Philosophy.
S. E. Sparling, Ph. D., Assistant Professor of Political Science.
H. C. Taylor, Ph. D., Assistant Professor of Political Economy.
F. J. Turner, Ph. D., Professor of American History.

PURPOSE AND PLAN OF THE COURSES

The courses preparatory to journalism have been selected and arranged with the purpose of indicating to students preparing for journalistic work the studies best adapted to give the broad training necessary for the successful pursuit of this profession. The increasing demand by editors of newspapers and periodicals for college graduates, indicates the recognition of the value of a college course as preparation for journalism. It is believed that the value of such a course may be greatly increased by having it include those subjects, a knowledge of which is essential for journalism of the best type.

The courses included in the list are of three kinds: (1), those designed to familiarize the student with present social, political, and industrial conditions in the light of their history and development, as well as with the literature of his own and other languages; (2) those designed to develop the power of expressing his ideas effectively in writing; (3) those intended to give the necessary technical instruction in the history, development, organization, and methods of modern journalism. The course of study has been arranged in the belief that the greater part of the time should be devoted to a study of the subjects of the first group, such as history, political science, economics, sociology, philosophy, psychology, language, and literature, which are fundamental to journalistic work. Instruction in the principles of effective written expression, and practice in writing are given by the courses in composition.

The technical work includes courses in newspaper writing of the several kinds, with a consideration of the methods of practical journalism, the history and development of the American press, and a study of the organization and management of a modern newspaper. Instruction is also given in the law of the press, including the law of copyright, literary property, libel, pri-

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vileged publications, and other topics relating to the publication of books and newspapers. In connection with the course in newspaper writing special lectures on various phases of journalistic work are given by newspaper men in active service.

TECHNICAL AND TRADE JOURNALISM

Although the courses outlined are designed primarily for those preparing for newspaper and editorial work, the arrangement of them can be readily modified to meet the needs of students desiring preparation for technical or trade journalism. Students in the College of Letters and Science may elect courses in the College of Mechanics and Engineering, the College of Law, and the College of Agriculture, as well as in the Course of Pharmacy and the Course in Commerce in the College of Letters and Science. In the same manner students in the Colleges of Mechanics and Engineering, Agriculture, and Law, may elect courses in the College of Letters and Science, such as those in composition and newspaper writing. The Course in Commerce in the College of Letters and Science includes a number of special groups of studies designed to furnish opportunity for a more thorough study of the various principles of commerce and industry, such as banking and finance, transportation, manufacturing industries, and agricultural industries. By combining studies in commerce, agriculture, engineering and other technical subjects with those outlined in preparation for journalism, students can obtain the necessary preparation for practically all lines of technical and trade journalism.

STUDENT PUBLICATIONS

The students of the university edit and manage a number of publications all of which offer excellent opportunities for practical experience in various kinds of journalistic work. Places on the editorial and business staffs of these publications are awarded for the most part on a basis of literary and executive ability, and are open to practically all students of the university. The Daily Cardinal, published as an afternoon newspaper, offers its staff of university students experience in much of the regular work on a daily paper. As it is printed at one of the Madison daily newspaper offices, it also affords the means of gaining familiarity with the mechanical side of newspaper making. The Sphinx, an illustrated humorous bi-weekly; the

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Wisconsin Literary Magazine, a monthly devoted to short stories, verse, and essays; and the Badger, the university annual edited and published by the members of the junior class, all give opportunity for a variety of experience in journalism. The Wisconsin Engineer, a quarterly edited and published by the students of the College of Engineering, and the Student Farmer, a monthly edited and managed by the agricultural students, furnish practice for those interested in technical and trade journalism.

GENERAL REQUIREMENTS

Students will be admitted to these courses on compliance with the conditions imposed for entrance to the College of Letters and Science. (See Index under Requirements for Entrance.)

Persons over twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance but do not wish to be candidates for a degree, will be admitted to any of the courses for which they are properly prepared.

For the requirements for a degree of bachelor of arts see Index

ARRANGEMENT OF COURSES

In accordance with the elective system of the University, students preparing for journalism are not restricted to a fixed course of study, but are permitted to elect any studies which they are qualified to pursue. The following list contains those courses in history, economics, political science, philosophy, and English, which bear most directly upon journalistic work. The courses in each subject have been arranged under the four years in the order in which they normally follow each other. Courses marked with an asterisk are required of all students; the numbers in parenthesis indicate the number of the course in the department; Arabic figures following the parenthesis indicate the number of hours a week; and the Roman figures the semester in which the course is given.

FRESHMAN YEAR

*Freshman English (1), 3; *Foreign Language, 4; English History (5), 3; Medieval History (1), 3; *Mathematics, 3 or *Science, 5.

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SOPHOMORE YEAR

Sophomore Composition (2, 2A), or Advanced Composition (6), 3; General Survey of English Literature (30), 3; History of the United States (4), 3; Elements of Economic Science (1), 3, I; Elements of Money and Banking (5), 3; Elements of Political Science (1), 3, I; Economic Geography (7a, 7b), 3, II; *Foreign Language, 4.

JUNIOR YEAR

Newspaper Writing (19); Modern English Prose (54); Narrative Composition (7), 2, II; American Literature (40), 2; Modern History (2), 3; The British Empire Since 1688 (43), 2; Elementary Law (2), 3, I; Government and Politics in the United States (7), 3, II; International Law (18), 3, I; Party Government (22), 3, I; Charities and Corrections (40), 3, II; Labor Problems (23), 3, II; Social Psychology (39), 3, I; Elements of Public Finance (3), 3, I; Problems of Taxation (24), 2, II; History of the South (12), 3; History of New England (13), 2; Psychology (1), 3, I; Ethics (41), 3, II; History of Modern Philosophy (32), 3, II; *Foreign Language, 2.

SENIOR YEAR

Newspaper Writing (19a), 2; History of the West (11), 3; Nineteenth Century Europe (39), 3, II; Diplomatic History of the United States (15), 2; History of Europe and Asia (48), 2; Social and Economic Statistics (31, 32), 3; Transportation and Communication (35), 3, II; Financial History of the United States (33), 3, I; The Money Market (34a) 3, I; Industrial Evolution and Its Problems (20), 2, I; Monopolies and Trusts (58); Labor and Industrial History (64), 2; Comparative Administration (14), 2, I; Administrative Problems (6), 2, I; The Law of the Press (25), 1, II; Theory and Practice of Legislation (26), 3; Oriental Politics and Civilization (20), 3, II; Municipal Government in Europe and the United States (15), 3, II; Contemporary International Politics (19), 1; Social and Political Ethics (42), 2, I; Philosophic Thought in Nineteenth Century English Literature (23), 2, II; Abnormal Psychology (7), 2, II; Modern Drama (52), 2; Drama and Shakspeare (36, 36a), 3; American Literature (47), 2; Current Political Topics (32), 2; *Foreign Language, 2.

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DEPARTMENTS OF INSTRUCTION

English

For detailed information regarding these courses see Index.

1. Freshman English. English prose style. Composition. *Throughout the year; three hours a week.* Required of all freshmen. Professor HUBBARD and assistants.

2. Sophomore Composition. Exposition, first semester; narration, second semester. Elective for students who have finished freshman English. *Throughout the year; Tu., Th., at* 8, *and* 11. Assistant Professor DICKINSON and Miss BERKELEY.

2a. Sophomore Composition. Exposition throughout the year. *Throughout the year; Tu., Th., at* 12. Assistant Professor DICKINSON.

6. Advanced Composition. Elective for juniors and seniors and for sophomores who have done very good work in course 1. *Throughout the year; Tu., Th., at* 11. *Three-unit-hours credit.* Assistant Professor DODGE.

7. Narrative Composition. The study of some representative forms of the story, with exercises in plot-structure, technique, and criticism. Open to seniors, juniors, and to sophomores who have done very good work in English 1. *Second semester; Tu., Th., at* 10. Assistant Professor BEATTY.

19. Newspaper Writing. Practice in newspaper reporting, correspondence, and other details of a reporter's work. Open to students who have had considerable practice in composition. *Throughout the year; Tu., Th., at* 10. Assistant Professor BLEYER.

19a. Newspaper Writing. The course includes practice in editorial work, preparation of special articles, and other forms of journalistic writing. Open to those who have taken English 19, and to others, by special permission. *Throughout the year; M., W., at* 10. Assistant Professor BLEYER.

30. General Survey of English Literature. The history of English literature from the earliest times to the middle of the Nineteenth Century. *Throughout the year; M., W., F., at* 8, 9, 10, 11. Assistant Professors PYRE, CAIRNS, BLEYER, and DICKINSON.

40. American Literature. A general survey of literary writings in America from the earliest times to the present. This

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course must be preceded by course 1, and should be preceded or accompanied by course 30. *Throughout the year; Tu., Th., at* 9 *and* 10. Assistant Professor CAIRNS.

36. The Drama. A part of the first semester is devoted to the history of the development of the drama, the remainder of the year to Shakespeare. The course is open to seniors *Throughout the year; M., W., F., at* 11. Professor FREEMAN.

36a. Shakespeare. A short review of the political, social, and literary conditions of the Elizabethan age is followed by a careful study of ten representative plays of Shakespeare. *Throughout the year; M., W., F., at* 11. Professor CUNLIFFE.

47. Significant Movements in American Literature. The subject for 1907-08 was the origin and development of the short story in America, with some attention to its technique and its relation to other literary forms. Open to those who have completed course 40 or its equivalent. *Throughout the year; Tu., Th., at* 8. Assistant Professor CAIRNS.

52. Modern Drama. A survey of English dramatic literature beginning with the younger contemporaries of Shakespeare and extending to the present time. *Throughout the year: Tu., Th., at* 11. Assistant Professor PYRE.

54. Modern English Prose. A study of representative modern prose writers, with special reference to the characteristics of style. This course may be taken to advantage in connection with course 2, 6, 19, or 19a. *Throughout the year; Tu., Th., at* 11. Assistant Professor BLEYER.

History

For detailed information regarding these courses see Index under History.

1. Medieval History. A general survey of the history of Europe from the barbarian invasions to the close of the fifteenth century. *Throughout the year; M., W., F., at* 11. Professor MUNRO, Assistant Professor SELLERY, and assistants.

2. Modern European History. A general survey extending from the close of the fifteenth century to the present day. *Throughout the year; M., W., F., at* 8 *and* 12, *and a third hour in sections. First semester,* Assistant Professor SELLERY, *second semester,* Assistant Professor COFFIN.

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4. History of the United States. A general survey from the Revolutionary era to the present, with emphasis upon political history. *Throughout the year; M., W., F., at* 11. Associate Professor FISH.

5. English History. An outline of political and constitutional history will serve as a framework for the study of the economic, social, and intellectual development of the nation. *Throughout the year; Tu., Th., at* 10, *and a third hour in sections for quiz work.* Professor DENNIS and assistants.

11b. The History of The West, 1840 to the present. Particular attention is paid to the conditions of westward immigration and its economic, political, and social aspects. *Throughout the year; M., W., F., at* 12. Professor TURNER.

12. History of the South. Especial attention is given to the economic and social forces involved in the plantation system. *Throughout the year; M., W., F., at* 11. Assistant Professor PHILLIPS.

13. History of New England. A study of the transfer of population from Europe to the New England region, of the forces, social, economic, and political, that acted upon it there and the expansion westward across the United States and Canada. *Second semester; M., W., F., at* 10. Associate Professor FISH.

15. Diplomatic History of the United States. A study of the actual negotiations between the United States and other countries and of the problems involved in these negotiations. *Throughout the year; Tu., Th., at* 10. Associate Professor FISH.

43. The British Empire since 1688. A course dealing with the development of modern English institutions, foreign affairs, the international struggle for colonial and commercial supremacy, and the evolution of imperial politics. *Throughout the year; Tu., Th., at* 12. Professor DENNIS.

48. Europe and Asia. A general survey of the hisorical relations of eastern and western peoples, as a basis for courses in contemporary world politics. *Throughout the year; Tu., Th., at* 3. Professor DENNIS.

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Political Science

For detailed information regarding these courses see Index under Political Science.

1. Elements of Political Science. A general survey of the field of political science. *First semester; M., W., F., at* 8. *Repeated the second semester.* Assistant Professor SPARLING.
2. Elementary Law. The nature and sources of law, and the methods of its application. *First semester; M., W., F., at* 12. Assistant Professor SCOTT.
6. Administrative Problems. *Second semester; Tu., Th., at* 8. Assistant Professor SPARLING.
7. Government and Politics in the United States. A general study of the American system of government. *Throughout the year; Tu., Th., at* 9. Professor REINSCH and assistants.
14. Comparative Administration. A survey of the administrative systems of Europe and the United States. *First semester; Tu., Th., at* 9. Assistant Professor SPARLING.
15. Municipal Government in Europe and the United States. *Second semester; M., W., F., at* 8. Assistant Professor SPARLING.
18. International Law. *First semester; M., W., F., at* 9. Professor REINSCH.
19. Contemporary International Politics. A course of weekly lectures. *Throughout the year; W., at* 5. Professor REINSCH.
20. Oriental Politics and Civilization. *Second semester; M., W., F., at* 10. Professor REINSCH.
22. Party Government. Special attention will be given party organization and methods of legislative bodies. *First semester; Tu., Th., at* 11. Assistant Professor SCOTT.
25. The Law of the Press. The law of copyright, literary property, libel, privileged publications, and other topics relating to the publication of books and newspapers. *Second semester; M., at* 3. Assistant Professor SCOTT.
26. The Theory and Practice of Legislation. *Throughout the year; M., W., F., at* 12. Dr. MCCARTHY.
32. Current Political Topics. Study of current political topics with training in the discriminating use of sources and in effective methods of presentation. A training course designed for students preparing for journalism. Open to

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seniors and first year graduate students. *Throughout the year; Tu., Th., at* 10. Mr. HORNBECK.

Political Economy

For detailed information regarding these courses see Index.

1. The Elements of Economic Science. *Repeated each semester; M., W., F., at* 8, 9, *and* 10. Professor COMMONS, Assistant Professor TAYLOR, and assistants.
2. Elementary Sociology. This course traces the actual evolution in each of the great departments of social life. *One-unit-hour credit. First semester; M., W., F., at* 10. Professor Ross.
3. Elements of Public Finance. An introductory study of the general principles of public expenditure, public revenue, public indebtedness, and financial administration. *First semester; M., W., F., at* 9. Associate Professor ADAMS.
5. The Elements of Money and Banking. An introductory course. *Repeated each semester; M., W., F., at* 9. Professor SCOTT.

7a. Economic Geography. A general survey of the history and present status of industry and commerce in the principal countries of the world excepting the United States. *First semester; M., W., F., at* 8 *and* 9. Assistant Professor TAYLOR.

7b. Economic Geography of the United States. *Second semester; M., W., F., at* 8. Assistant Professor TAYLOR.

8. Business Administration. Training course in business operations with practice in accounting systems, and other details of business organization and management. Professor BURCHELL and Assistant Professor GILMAN.
20. Industrial Evolution and Its Problems. A general survey of industrial development. *First semester; Tu., Th., at* 10. Professor ELY.
23. Labor Problems. Strikes, trades unions, employers' associations, arbitration, immigration, child labor, etc. *First semester; M., W., F., at* 11. Associate Professor ADAMS.
24. Problems in Taxation. *Second semester; Tu., Th., at* 11. Associate Professor ADAMS.
25. Labor Legislation. A study of the labor law of the United States and foreign countries. *Second semester; M., W., F., at* 10. Associate Professor ADAMS.

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31. Economic Statistics. Prices, wages, family budgets, labor, financial statistics. *Second semester; Tu., Th., at* 12. *Laboratory hours to be arranged.* Associate Professor ADAMS.

32. Social Statistics. A study of vital statistics, suicides, crime, pauperism, etc. *Second semester; Tu., Th., at* 10. *Laboratory hours to be arranged.* Associate Professor ADAMS.

34a. The Money Market. Lectures on the methods and movements of the money markets. *First semester; Tu., Th., at* 12. Professor SCOTT.

35. Transportation and Communication. Railways, waterways and the express, telephone, telegraph, and the postoffice services. *Repeated each semster; M., W., F., at* 8. Professor MEYER.

39. Social Psychology. The laws of mob-mind, craze, fad, fashion, conventionality, custom, standard of comfort, spirit of the age, public opinion, etc. *First semester; M., W., F., at* 11. Professor ROSS.

41. Charities and Corrections. *Second semester; M., W., F., at* 10. Professor ROSS.

42. Labor Problems. *First semester; M., W., F., at* 10. Professor COMMONS.

58. Monopolies and Trusts. Professor ELY.

64. Labor and Industrial History. The development of the modern labor movement. *Second semester; M., W., at* 2:30 *to* 4:00. Professor COMMONS.

Philosophy

For detailed information regarding these courses see Index.

1. Psychology: Introductory Course. *First semester; M., W., at* 9, *and F., at an hour to be arranged; and Tu., Th., at* 9, *and F., at an hour to be arranged.* Professors JASTROW and SHARP and Assistant Professor BODE.

23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature. *Second semester; Tu., Th., at* 11. Assistant Professor BODE.

32. History of Modern Philosophy. A study of the development of philosophy from the Renaissance to the present day. *Second semester; M., W., F., at* 11. Professor MCGILVARY.

41. Ethics: Introductory Course. *Second semester; M., W., F., at* 9. Professor SHARP.

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42. Social and Political Ethics. Course 41 is not required as a preliminary. *First semester; Tu., Th., at* 12. Professor SHARP.

7. Abnormal Psychology. *Second semester; Tu., Th., at* 10. Professor JASTROW.

LIBRARY TRAINING COURSES

Experts are agreed that the best foundation for success in library work is a sound general education, and the ideal plan of preparation is a four years' college course followed by one or two years of technical training. But for those who are not able to afford so much time a joint course has been arranged at the University and the State Library School, whereby a student of ability and energy can in four years, with the opportunities afforded by the summer session, take the degree of bachelor of arts and at the same time complete the technical training required by the State Library School. In the first two years, students take the regular freshman and sophomore work of the College of Letters and Science, choosing such courses as will enable them to pass the entrance examination of the Library School. In the junior and senior years, they substitute equivalent courses in the Library School for ten unit-hours of University work each year. Of the twenty unit-hours of Library School work for which credit is given, ten may be counted towards an English major, if the candidate chooses that subject.

HOURS OF LECTURES

The Library School will arrange its lecture hours so as not to interfere with college courses. For the junior year the main courses in the Library School will be on Tuesday and Thursday, for the senior year, on Monday, Wednesday, and Friday.

LIBRARY SCHOOL COURSES

JUNIOR YEAR

First semester: Reference (2 hours), Loan (1), Classification (2). Second semester: Reference (2), Public Documents (1), Subject Bibliography (1), Library Economy (1); with practice

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work, for which facilities will be offered by the Free Library Commission and in the Madison Public Library.

SENIOR YEAR

First semester: Cataloguing (3), Library Economy (2), Book Selection (1). Second semester: Book Selection (1), Administration, etc. (2), Cataloguing Documents (1), Library Economy (1) with practice work and thesis. The thesis will be under the direction of the university department in which the student chooses his major subject, and the bibliography included in it will be accepted by the Library School in satisfaction of its thesis requirements.

Field Practice

Two months of actual library work in an approved library, preferably a Wisconsin library, will be required by the Library School before its diploma is granted. This work, for which the Director of the school will arrange, can be done during the summer, following either the junior or senior year. If it is not done until the close of the senior year, and the student should secure a position at commencement time, the first three months of satisfactory work in this position will be accepted for the required field work, and the diploma granted.

Detailed information regarding the courses in the University and in the State Library School is given in a special bulletin for 1908-09, entitled Library Training Courses.

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THE COLLEGE OF ENGINEERING

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
F. E. TURNEAURE, C. E., Dr. Eng., Dean. Professor of Engineering.

Officers of Instruction in Technical Departments

M. C. BEEBE, B. S., Associate Professor of Electrical Engineering.
C. F. BURGESS, E. E., Professor of Applied Electrochemistry.
C. H. BURNSIDE, M. A., M. S., Assistant Professor of Mechanics.
GEO. JACOB DAVIS, Jr., C. E., Assistant Professor of Hydraulic Engineering.
J. C. DICKERMAN, B. S., Assistant Professor of Chemical Engineering.
O. H. ENSIGN, Professor of Electrical Engineering.
J. G. D. MACK, M. E., Professor of Machine Design.
E. R. MAURER, B. C. E., Professor of Mechanics.
D. W. MEAD, C. E., Professor of Hydraulic and Sanitary Engineering.
W. D. PENCE, C. E., Professor of Railway Engineering.
J. D. PHILLIPS, B. S., Professor of Drawing.
A. W. RICHTER, M. M. E., Professor of Experimental Engineering.
J. W. SHUSTER, B. S., Assistant Professor of Electrical Engineering.
L. S. SMITH, C. E., Associate Professor of Topographic and Geodetic Engineering.
J. C. STEEN, Superintendent of Machine Shops.
H. J. B. THORKELSON, M. E., Assistant Professor of Steam Engineering.
J. T. ATWOOD, B. S., Instructor in Experimental Engineering.
A. H. AYRES, C. E., Instructor in Hydraulic Engineering.
K. O. BURRER, B. S., Instructor in Electrical Engineering.
W. L. DABNEY, Instructor in Mechanical Practice.
R. F. EGELHOFF, B. S., Instructor in Mechanical Drawing.
E. FLAMMER, B. S., Instructor in Electrical Engineering.

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M. R. HAMMER, B. S., Instructor in Mechanical Drawing.
F. W. HUELS, B. S., Instructor in Experimental Engineering.
F. KATELY, Assistant in Forge Room.
R. M. KEOWN, B. S., Instructor in Machine Design.
W. S. KINNE, B. S., Instructor in Structural Engineering.
J. B. KOMMERS, B. S., Instructor in Mechanics.
O. L. KOWALKE, B. S., Instructor in Chemical Engineering.
E. A. LOEW, B. S., Instructor in Electrical Engineering.
W. G. LOTTES, Instructor in Forge Practice.
B. R. MCBRIDE, B. S., Instructor in Hydraulic Engineering.
F. M. MCCULLOUGH, B. S., Instructor in Mechanics.
A. V. MILLAR, M. S., Instructor in Descriptive Geometry.
A. H. MILLER, B. S., Instructor in Mechanics.
R. S. OWEN, B. S., Instructor in Civil Engineering.
E. E. PARKER, B. S., Assistant in Structural Engineering.
W. C. PENN, B. S., Instructor in Topographical Engineering.
J. R. PRICE, B. S., Instructor in Electrical Engineering.
H. B. SANFORD, B. S., Instructor in Electrical Engineering.
E. M. SHEALY, B. S., Instructor in Steam Engineering.
P. SLADKY, Assistant in Machine Shop.
J. G. VAN ZANDT, B. S., Instructor in Railway Engineering.
J. H. VOSSKUEHLER, B. S., Assistant Professor in Machine Design.
F. M. WARNER, B. S., Instructor in Mechanical Drawing.
J. W. WATSON, B. S., Instructor in Electrical Engineering.
O. P. WATTS, Ph. D., Instructor in Chemical Engineering.
W. E. WICKENDEN, B. S., Instructor in Electrical Engineering.
J. C. WIED, B. S., Instructor in Experimental Engineering.
L. D. WILLIAMS, B. S., Instructor in Civil Engineering.
M. O. WITHEY, C. E., Instructor in Mechanics.

J. L. BARTLETT, B. S., Assistant Professor of Meteorology.
ARTHUR BEATTY, Ph. D., Assistant Professor of English.
ELIOT BLACKWELDER, A. B., Assistant Professor of Geology.
G. C. COMSTOCK, Ph. B., LL. B., Professor of Astronomy.
T. H. DICKINSON, Ph. D., Assistant Professor of English.
J. C. ELSOM, M. D., Professor of Physical Culture.
M. B. EVANS, Ph. D., Assistant Professor of German.
W. D. FROST, Ph. D., Associate Professor of Bacteriology.
O. A. GAGE, Ph. B., Assistant Professor of Physics.
LOUIS KAHLENBERG, Ph. D., Professor of Chemistry.
C. K. LEITH, Ph. D., Professor of Geology.

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VICTOR LENHER, Ph. D., Professor of Chemistry.
R. MCCOY, Captain U. S. Army, Professor of Military Science.
M. P. RAVENEL, M. D., Professor of Bacteriology.
C. S. SLICHTER, M. S., Professor of Applied Mathematics.
A. H. TAYLOR, B. S., Assistant Professor of Physics.
J. H. WALTON, Jr., Ph. D., Assistant Professor of Chemistry.
A. N. WINCHELL, Dr. of Univ. of Paris, Assistant Professor of Mineralogy and Petrology.

B. BARTHOLOMEW, Ph. M., Assistant in Mathematics.
G. D. BIRKHOFF, Ph. D., Instructor in Mathematics.
F. BRUNS, M. A., Instructor in German.
E. A. COOK, B. L., Instructor in English.
J. D. DEIHL, Assistant in German.
J. S. GRIFFIN, Assistant in Romance Languages.
N. C. GRIMES, A. B., Instructor in Mathematics.
J. F. HAUSSMANN, Ph. D., Instructor in German.
H. G. HEIL, Ph. B., Instructor in Physics.
F. C. HICKS, Ph. D., Instructor in German.
O. L. KEITH, A. M., Instructor in Romance Languages.
J. L. KIND, Ph. D., Instructor in German.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
F. LAMOTTE, M. S., Assistant in Romance Languages.
W. E. LEONARD, Ph. D., Instructor in English.
H. W. MARCH, M. A., Instructor in Mathematics.
LAWRENCE MARTIN, A. M., Instructor in Geology.
W. J. MEAD, B. S., Assistant in Geology.
W. J. NEIDIG, A. B., Instructor in English.
G. N. NORTHROP, B. A., Instructor in English.
F. W. ROE, A. M., Instructor in English.
J. R. ROEBUCK, B. A., Ph. D., Instructor in Physics.
E. B. SCHLATTER, A. M., Instructor in Romance Languages.
L. P. SHANKS, A. M., Instructor in Romance Languages.
A. W. SMITH, Ph. D., Instructor in Physics.
E. R. SMITH, A. B., Instructor in Mathematics.
E. STEIDTMAN, M. A., Assistant in Mineralogy.
E. M. TERRY, A. M., Instructor in Physics.
W. A. TITSWORTH, A. S., Assistant in Physics.
A. L. UNDERHILL, Ph. D., Instructor in Mathematics.
EDMUND WILD, M. S., Assistant in German.
H. C. WOLFF, M. S., Instructor in Mathematics.

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E. C. WOOLLEY, Ph. D., Instructor in English.
C. D. ZDANOWICZ, Ph. D., Instructor in Romance Languages.

ORGANIZATION OF THE COLLEGE

The College of Engineering is organized in the belief that a thorough-going fundamental training is the first essential to a successful engineer, but that this fundamental training may be best secured not alone by theoretical study, but by giving attention as well to the practical applications of the principles involved. It is further a leading thought that after the fundamental principles have been mastered, a certain measure of specialization in the main lines of engineering is advisable, because of the great development of engineering in recent years, and the various phases which it is rapidly assuming. It is the endeavor of the college to combine a reasonable amount of specialization during the later years of its courses with a thorough grounding in the fundamentals during the earlier portions; and in carrying out this plan, it endeavors to make the mathematical and theoretical courses strong in the earlier years and the applied courses as strong in the later years, while the draughting and shop courses continue progressively from the beginning to the end. It also introduces sufficient foreign language to enable its graduates to read the professional German or French literature, and aims to give so much of a mastery of the English language as to enable its graduates to present professional subjects with ease, clearness, and effectiveness.

REQUIREMENTS FOR ADMISSION

The requirements for the admission of regular students are stated fully on page 70.

Preparation in Algebra for Engineering

All students entering the College of Engineering are required to pass an examination in algebra before being admitted to the regular algebra classes. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the time when they begin their course*, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students fail-

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ing in the examination will be required to take extra work in algebra during the first semester.

In performing the fundamental operations of algebra such as multiplication and division, the use of parentheses, the solving of numerical and literal equations of the first and second degree, the simplification of fractions and radicals, and the putting of problems into equations, it is of the first importance that the student should have distinct notions of the meaning and reasons for all that he does, and be able to state them clearly in his own language. He should be able to perform all these operations, even when somewhat complex, with rapidity, accuracy, and neatness. In his preparatory studies the student is advised to solve a great many practical problems, and to describe fully the reasons for the steps taken.

STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES

Students from other institutions, who have pursued standard college courses equivalent to those of the University will be admitted, and will receive credit for such courses, upon the presentation of proper certificates of creditable standing and honorable dismissal. Students of other colleges of good standing who have not taken such standard courses, but who have studied one year in the college proper, may be admitted to the University provisionally. In such cases the amount of credit will be determined by the Committee on Advanced Standing. The University reserves the right to test by examination the records presented.

No person will be admitted to the University later than November 1st of the year in which he expects to graduate.

ADMISSION OF SPECIAL STUDENTS

Candidates under twenty-one years of age desiring to take special courses will be required to have the same qualifications as candidates for one of the regular courses.

Persons over twenty-one years of age, *who are not candidates for a degree* and who wish to take special studies, will be permitted to do so upon giving satisfactory evidence that they are prepared to take the desired studies advantageously. An examination in elementary algebra and geometry will be required. If they subsequently desire to become candidates for a degree, or to take a regular course, they must pass the required entrance examinations.

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STUDENT ADVISERS

In the selection and arrangement of studies, all students are under the supervision of advisers. It is the duty of the advisers to issue class cards at the opening of each semester, admitting students to their classes, to receive the regular semester reports from instructors, and special reports on deficient students, and to report to the faculty all cases requiring special action.

Reports to parents or guardians on the work of students, are sent from the Registrar's office at the end of each semester.

FEES AND EXPENSES

Tuition for residents of the State of Wisconsin	FREE
Tuition for non-resident students—per semester	$20 00
General fee—first semester	15 00
General fee—second semester	15 00
General fee for four weeks summer term, shop or field work	7 00
Engineering periodical fee for the year	1 00
Gymnasium fee—per semester	1 00

A laboratory fee of $2 per semester, for each two hours' work per week, is charged in all the engineering laboratories, and for the use of surveying instruments in the field.

Students working in any of the other laboratories of the University are also required to pay a fee or to make a deposit to cover the cost of the materials and repairs to instruments used by them.

At the beginning of the freshman year, students must be prepared to meet an expenditure of about $70 for laboratory fees, drawing instruments, text books, and military uniform. For the second semester these expenses will not exceed $10. For subsequent years the fees and text books will amount to $15 to $20 per semester.

Rooms, furnished and unfurnished, can be obtained in the city at reasonable rates. The cost of board in clubs is from $3.00 to $3.50 a week; in private families from $3 to $4 a week.

EQUIPMENT

Buildings

The work of the College is carried on in four large buildings. The main building is a four-story structure built for the special

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use of the College of Mechanics and Engineering. It contains the offices, recitation and draughting rooms, and laboratories for work in Mechanical Engineering, hydraulics, and the testing of materials. A second large building of simple construction contains the main electrical laboratories and the various departments for shop instruction. A third building contains the laboratories for Chemical Engineering, electrical testing and photometer rooms. Laboratory work in hydraulics is provided for in a large concrete building situated on the shore of Lake Mendota.

For Chemistry the engineering students go to the Chemical Building, for physics and other natural sciences to Science Hall, and for language, mathematics, and other similar work, to the literary halls of the University. In this way the students of engineering come into daily contact with the students in the other courses, to the great advantage of all classes.

Libraries

For a general account of the library facilities of the University see Index. The College of Mechanics and Engineering subscribes for about one hundred and seventy-five technical periodicals, and also purchases duplicate copies of standard engineering works of reference, one set of which, and the engineering periodicals, are kept in the engineering reading room, on the first floor of the Engineering Building, in order to facilitate the frequent use of them by the engineering students. The bound files of technical periodicals in the library are unusually complete, and additions are made every year.

Laboratories and Apparatus

The engineering laboratories are well equipped for purposes of instruction and investigation.

THE TESTING LABORATORY occupies the high sub-basement under the assembly room of the Engineering Building. It is supplied with a 600,000 pound hydraulic universal testing machine (designed in the laboratory) taking tension and compression specimens 10 feet and beams 20 feet long; a Riehlé torsion machine taking shafts 15 feet long and 3 inches in diameter; a 50,000 pound Johnson beam machine taking beams 18 feet long; 6 Olson and Riehlé universal machines from 10,000 to 100,000 pounds capacity; a Thurston torsion machine; a Russell impact

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machine; several small beam and wire machines; and a full complement of accessories as extensometers, deflectometers, recorders, etc. It is supplied also with a Smith concrete mixer, a large number of beam, column, and compression specimen molds and other equipment for tests of plain and reinforced concrete on a large scale. A set of standard appliances, including a foundry rattler, is available for testing the wearing and cementing properties of road-building material.

THE CEMENT LABORATORY contains a full supply of necessary apparatus for making tests according to the American Society of Civil Engineers' standard; baths, self-recording thermometers, Boehme hammer, complete one-thousand-pound Riehlé and Fairbanks testing machines, etc.

THE HYDRAULIC LABORATORY.—This laboratory has recently been built on the shore of Lake Mendota, and equipped for experimental and research work. The facilities are specially good for studying those problems where large quantities of water are needed. A direct-connected thirty-inch centrifugal pump furnishing up to 35,000 gallons of water a minute under a twelve-foot head has been installed. This water is delivered into a receiving chamber connected with various conduits and channels by means of which investigations covering the flows in such channels and conduits together with the effects thereon of dams, weirs, racks, submerged orifices, and other features encountered in water power work can be conducted. Four turbines have been purchased. Three of these, including a thirty-inch wheel, which will develop about fifty horse-power under the maximum available head, are equipped with a weir in the tail race, so that accurate determinations in regard to quantities, velocities and efficiences under various heads and conditions can be made.

Apparatus has also been provided for the study of flows in straight and curved pipe and hose and losses due to sudden enlargements and contraction and to valves and other forms of restricted passages; for the study of ground water flow and the friction of water through sands and gravels; and for the study of flow over free and submerged weirs of various types and of free and submerged orifices. A large assortment of accurate apparatus for the measurement of quantities, velocities and pressures, both in open and closed channels is available.

The laboratory is equipped with various types of impulse water-wheels, including tangential and Girard turbines, and with

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various reciprocating steam pumps, centrifugal pumps; vacuum pumps, jet pumps and hydraulic rams. There is also provided a variety of water meters, among them the Venturi meter.

The regular course of instruction includes a careful selection of typical determinations, and opportunities are offered for advanced and research work in practical hydraulics and hydraulic machinery as well as in more advanced lines.

THE MECHANICAL LABORATORY.—The main laboratory, which is 74 feet by 50 feet, is a one-story addition in the rear of the Engineering Building, and is so placed that the wings, which ultimately will be added to the building, will leave this laboratory in the court thus created. The floor of this laboratory is on the same level as the main basement of the building; a gallery arranged especially for visitors runs around the whole laboratory, to which gallery one gains entrance from the first floor. A part of this wide gallery is partitioned off, a portion forming laboratories for special investigation. The main laboratory is well equipped with a variety of steam engines, specially arranged for experimental work. The most important of these is a fifty horse-power cross compound engine, so arranged that either cylinder can be supplied with live steam from the boilers and run as a single cylinder engine. The surface condenser and air pump can also be disconnected so that the engine may be run as a non-condensing one. Both cylinders and receiver are provided with steam jackets, which may be used at will. By means of a Proell governor the number of revolutions may be varied from 90 to 125. The cut-off of the steam may vary automatically between zero and ninety-five per cent. of the stroke.

The above engine is also connected to a fifty horse-power superheater, capable of superheating the steam 200 degrees F.

There is also installed a fifteen-ton refrigerating plant, consisting of a Corliss engine direct connected to a horizontal double-acting ammonia compressor. This machine is cross-connected to a five ton, vertical, three-cylinder, single-acting ammonia compressor belted to an electric dynamo. With the above compressors there are installed double pipe condensers and brine coolers, brine tanks, brine coils, and ventilating coils for the cooling of rooms.

This laboratory also contains a new twenty-five kilowatt steam turbine, a fifty horse-power two stage air compressor directly connected to a compound condensing engine equipped with the Meyer valve gear; also various other types of steam, gas, gasoline,

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and hot air engines. Among the more important pieces of apparatus is a vertical three-cylinder gas engine of seventy-five horse-power capacity. There is also installed a twenty-five horse-power gas producer and producer gas engine.

The laboratory is supplied with friction brakes, transmitting dynamometers of various kinds and capacities, a mercury column, and other means of testing steam and vacuum gauges and indicators, and various devices for special tests. There are also the necessary tanks, weighing apparatus, pyrometers, theremometers, calorimeters, some forty indicators, revolution counters, tachometers, recording gauges, reducing motions, water meters, etc., for making complete tests of the economy and capacity of boilers and engines. The laboratory is also supplied with a very large number and variety of injectors, and with special facilities for making tests of the same.

The boiler house of the University, which furnishes steam for nearly all of the buildings of the institution, both for heating and for power purposes, is also equipped in such a manner that experimental work with reference to the economy of boilers under various conditions may easily be carried out.

Gas Analysis and Fuel Laboratories.—In the eastern wing of the building are the separate laboratories for gas and coal analysis; these rooms are both large and well lighted, and furnish excellent opportunities for extended researches in these very important branches of study. The equipment includes the Parr Coal Calorimeter, Mahler Bomb Calorimeter, Junker Gas Calorimeter, and many other forms of gas apparatus.

The Electrical Laboratories are liberally supplied with scientific and commercial instruments, and are arranged for instruction and investigation. With the space and apparatus which are allowed through the generosity of past legislatures, the equipment has been made unusually complete in the lines of continuous current and single and polyphase alternating current generation and distribution, and commercial electrochemistry and electrometallurgy.

The dynamo collection consists of a large number of continuous current dynamos and motors of various types and sizes and a similar number of alternating current dynamos and motors likewise of various types and sizes. They are specially installed for the purpose of instruction and experiment. Over fifty dynamos of various types are supplied for exclusive laboratory use,

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The largest one has a capacity of 270 horse-power and the smallest one a capacity of a fraction of a horse-power. The greater number have capacities ranging between five horse-power and twelve horse-power, which make them particularly adapted to the purpose of laboratory instruction. Two engines, one a high speed Ideal engine of 150 horse-power driving a Bullock continuous current dynamo and the other a Filer and Stowell Corliss engine of 300 horse-power driving a National polyphase alternator,—are provided to furnish the necessary power, and electric currents are distributed over the laboratories for use in driving machinery, operating electrical furnaces, and other desirable purposes.

All the necessary apparatus is supplied for use in testing dynamos, including large lamp banks, transformer banks and water rheostats for loading generators; special Prony brakes, etc., for loading motors; and accurate electrical measuring instruments of the various useful types. An extensive collection of transformers and an equally comprehensive bank of integrating electric meters afford opportunities for routine testing and the study of problems relating to the design, construction and use of such apparatus.

Several large rooms are occupied by the appliances and apparatus required for instruction and experiments relating to electric batteries, electrolysis, electroplating, and electrometallurgy. Several smaller rooms are fitted up for experimental investigations. The equipment for these laboratories consists of dynamos and tanks for depositing metals and for other electrolytic processes. apparatus for cleaning, polishing, precipitating, filtering and other processes. An electric furnace room has been fitted up with rheostats and instruments for operating electric furnaces, power being supplied by the large generators described above; various electric furnaces for electrometallurgical operations requiring the intense heat of the electric arc are operated therefrom. Sources of electrical current, both alternating and direct, are available for experimental work, alternating pressures as high as 50,000 volts being employed. The equipment is one of the first and most complete of its kind.

Other rooms are assigned to work in electrical testing, measuring, illumination, and various other branches of laboratory instruction and investigation. The rooms for electrical testing, photometrical experiments, and the investigation of high tension electrical phenomena are particularly well equipped.

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A great number of amperemeters, voltmeters, wattmeters, Wheatstone bridges, variable self-inductance and mutual-inductance boxes, condensers, galvanometers, electrodynamometers, electric balances, 100,000 ohm and megohm resistances, Clark cells, Burgess electrometer testing sets, and other apparatus are supplied for general use, while standard apparatus for determining the adjustments of the several instruments is at hand. Special means are provided for the important functions of insulation testing, testing the magnetic qualities of metals (including a Ewing hysteresis tester, Ewing permeability bridge, magnetic balance, and other apparatus) for photometry of Nernst, arc and incandescent lamps, and for measuring the distribution of illumination, for which the equipment is very full, three oscillographs, electrical condensers for use with alternating current circuits, etc. Apparatus is also provided for class-room demonstration, such as apparatus for demonstrating the phenomena of polyphase current transformation and polyphase motors, a fine set of models and charts illustrating the different forms of armature windings, etc.

A Thomson electric welder, located in the dynamo room, gives opportunity for instruction upon the electrical working of metals, and a transformer of twenty kilowatts capacity furnishes alternating current of 50,000 volts pressure for instruction in high pressure testing and the phenomena of high pressure electric power transmission. Alternating and polyphase (two-phase and three-phase) currents of the ordinary frequencies are on tap, at the switch- boards, and other frequencies and phases may be generated at will by means of rotary converters, one of which has a capacity of thirty kilowatts.

The demand, from both undergraduate and graduate students, for accommodations in these laboratories has grown so rapidly that another large addition has just been made to the laboratory building for the purpose of increasing the already extensive facilities briefly described in the above paragraphs.

All electrical laboratory work is made to conform with, and to illustrate, the class-room instruction. Of the total number of hours given to instruction in the electrical engineering courses, about one-half is devoted to work in the laboratories. The laboratory work of graduate students is ordinarily in the nature of original experiments or investigations carried on under favorable

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conditions and directed through constant consultations with the instructor.

CHEMICAL ENGINEERING AND APPLIED ELECTROCHEMISTRY LABORATORIES.—In the Chemical Engineering Building the first floor and basement are devoted to laboratories for instruction in chemical technology and applied electrochemistry. Two rooms are completely equipped for technical gas and fuel examinations, the equipment comprising all standard forms of analytical apparatus, gas and fuel calorimeters, and pyrometers. Steam stills, evaporators, centrifugals, vacuum dryers, digesters, vacuum and pressure pumps, melting, roasting, and calcimining furnaces, and other similar apparatus are installed for the study of chemical manufacture.

In the crushing and grinding room are various commercial types of coarse and fine crushers and disintegrators for treatment of ores and other raw materials. Magnetic, electrostatic, and other forms of separators are included in the equipment.

The applied electrochemistry equipment comprises a great variety of electrochemical appliances, a complete electroplating and refining room, battery room, two electric furnace rooms with various types of furnaces, and source of power both alternating and direct aggregating over 500 horse-power.

THE BRIDGE ENGINEERING DEPARTMENT owns a set of Fraenkel's autographic apparatus for the testing of bridges under moving trainloads. This includes two extensometers for measuring strains in members and a deflectometer for measuring vertical and lateral deflections. Special apparatus for this purpose has also been manufactured at the University and important impact experiments conducted on several railroads. The department also possesses a large French model of a skew arch bridge, several large size iron models of bridge joints and a large collection of drawings and photographs, to which additions are constantly being made.

THE SURVEYING LABORATORY.—By an agreement with the director of Washburn Observatory, the surveying laboratory shares in the free use of the extensive apparatus belonging to that observatory, and including, in addition to the large equatorial telescope and the meridian circle, collimators, transit micrometers, chronograph, sidereal and meantime clocks, zenith telescopes, a transit instrument of the broken type, chronometers, an altazimuth, a

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universal instrument of the German type, spherometer calipers, and a complete set of meteorological instruments.

In addition to this equipment the surveying laboratory contains all the portable, astronomical, and field instruments needed for extensive triangulation, topographic, hydrographic and railroad surveys, including theodolites, altazimuth, tidal gauge, heliotropes, Kern precise-level and new U. S. C. & G. S. precise-level outfits, sounding apparatus, base-line apparatus, including a new "invar" type, current meters, transits, compasses, levels, plane-tables, telemeters, and such special instruments as plani-meters, pantographs, sextants, computing machines, aneroid barometers, etc.

PAVING MATERIAL MUSEUM. A beginning has been made toward securing an exhibit of paving supplies and samples of both old and new pavements for use in the course on Roads and Pavements.

THE MACHINE SHOP affords excellent facilities for mechanical practice. It embraces a main machine room properly equipped; a carpenter shop supplied with wood-working machines; a forge room provided with forges and their equipment with blast and exhaust fan and annealing and case-hardening furnace; a foundry room whose equipment consists of a cupola, brass furnace, and core oven, with the necessary small tools; a wood-work room supplied with benches, carpenter tools, and wood turning lathes; and a pattern room furnished with the requisite tools.

BACTERIOLOGICAL LABORATORIES.—For a description of these see Index.

THE ENGINEERING MUSEUM contains a complete set of Schroeder's models for descriptive geometry, including shades, shadows, and perspective; also a small collection of Schroeder's kinematic models, besides a number of smaller models, made by students, illustrating problems in kinematics. An excellent industrial collection is in process of development.

The standards of weight and measure belonging to the state are kept in the civil engineering department, and all official comparisons are made here.

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COURSES OF STUDY AND DEGREES

Four-Year Courses

The College of Engineering offers seven systematic four-year courses as follows:

CIVIL ENGINEERING,
SANITARY ENGINEERING,
MECHANICAL ENGINEERING,
ELECTRICAL ENGINEERING,
APPLIED ELECTROCHEMISTRY,
CHEMICAL ENGINEERING,
MINING ENGINEERING,
GENERAL ENGINEERING.

Students who complete any one of the above four-year courses are graduated with the degree of *Bachelor of Science*, the diploma containing a specific designation of the course taken.

Higher Degrees

The degree of *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer*, *Chemical Engineer* and *Engineer of Mines*, are conferred as second degrees upon Bachelors of Science in the Civil, Mechanical, Elecrical, Chemical, and Mining Engineering Courses respectively, or in allied courses, (1) who pursue advanced professional study at the University for one year, and present a satisfactory project or thesis; or (2) who present suitable evidence of three years of professional work, of which one must be in a position of responsibility, and present a satisfactory thesis.

The degrees of *Master of Science* and *Doctor of Philosophy* are conferred upon graduates of the Engineering courses under the same requirements as apply to graduates of the College of Letters and Science. For a statement of these requirements see Index, under Degrees.

Five and Six-Year Courses

With the rapid development in the industrial and commercial life of the country, the work of the engineer is constantly being extended to new and wider fields. These changing conditions demand that the training of the engineer shall be as broad and thorough as possible, for experience shows that those who prove to be the most successful in handling large enterprises are those who have breadth of view coupled with high technical attainments. Very often, indeed, the technical requirements are of

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secondary importance compared to the ability to secure the economical execution of work through efficient organization. It is coming to be generally recognized that a four-year technical course following the high school course is not an adequate preparation for those who are to fill the most important positions in the engineering profession; and the University would urge upon all those who can afford the time to extend their studies over a period of five or six years. To those who can thus extend their course the University offers excellent opportunities for acquiring a more thorough preparation by a combination of studies of the College of Letters and Science with the technical studies of the College of Engineering. Provision is made for carrying out such a combination of studies in two ways, as indicated below.

A

Courses leading to the B. S. Degree at the end of five years, and the professional degree (C. E., M. E., Ch. E., E. M., or E. E.) at the end of six years.

Courses of study have been arranged in which the work included in the regular four-year engineering course is distributed over a period of five years, and the time thus available is thrown open for election in any department of the University. The amount of time open for election is sufficient to enable the student to pursue satisfactorily some one or two lines of study in the College of Letters and Science, the College of Law, or the College of Agriculture, and thus greatly to strengthen his course. By taking such a five-year course a student may, for example, secure all of the essential studies of the Course in Commerce, together with a full Engineering course. For outlines of the five-year courses with suggested groups of electives see Index under Five and Six-Year Courses.

At the end of the fourth year of the five-year course no degree is given unless the student so elects. In this case he is required to write a thesis, and the degree will be *Bachelor of Science, General Engineering Course*, the work of the first four years corresponding closely to that course. The degree conferred at the end of the five years is the same as that given on the completion of the regular four-year course in technical Engineering. Students pursuing their work for a sixth year will be ranked as graduate students, and will receive the professional degree of C. E., M. E., Ch. E., E. E., or E. M.

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B

Courses leading to the B. A. degree in four years, and to the B. S. degree in two additional years.

Students desiring to secure the collegiate degree at the end of four years, and the engineering degree at the end of two additional years, will register in the College of Letters and Science during their first four years of residence. They will elect during their collegiate course the studies of the first two years of the engineering course which they plan to pursue later, with the exception of shop work. This may be taken as an extra study, or may be taken during vacation time. Upon receiving the B. A. degree they will be admitted as juniors in the College of Engineering.

Modern Language Requirements in all Engineering Courses

1. When the entrance language requirement is fulfilled (see Index): There are required 11 semester hours in French or German. (When French or German is offered for entrance, then the same language should preferably be continued in the University).

2. When the entrance language requirement is not fulfilled: Students who present the required number of units for entrance and who are graduates of accredited schools will be admitted without a preparation in language, but subject to a condition in the same. In this case there are required 19 semester hours in French or German. If French be taken and an average mark of 85, or over, be made in the first 11 hours, then the remaining 8 hours may be taken in another language.

Note.—For satisfactory reasons, the Faculty will permit the substitution of Spanish for French or German.

Inspection Tours

An inspection trip is made by the junior class during the week of the Easter recess. In this tour great manufacturing establishments and other important private and public engineering works in Chicago, Milwaukee and elsewhere are visited. These tours are made under the guidance of the professors, and are required of all juniors, unless excused by the faculty. Students who may be excused are required to present a report at the opening of the senior year on assigned inspection work of a similar character.

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OUTLINE OF ENGINEERING COURSES

FOUR-YEAR COURSES

Freshman Year--All Courses

Note.—In reckoning the hours per week required for the various studies, two hours of laboratory, draughting room, field, or shop work count as one hour of class-room work, which is the unit in this outline.

FIRST SEMESTER

	Hours per Week
German 2E*, French 5E, or Spanish 2EC†	4
English 1	3
Mathematics 101, Algebra	5
Chemistry 2	3
Mechanical Drawing 1	3
‡Topographical Engineering 2, or Shopwork	1

SECOND SEMESTER

German 2E, French 5E, or Spanish 2EC	4
English 1	3
Mathematics 102 and 103 (Trigonometry and Analytical Geometry)	5
Chemistry 2	3
Mechanical Drawing 2	3
‡Topographical Engineering 2, or Shopwork	1

CIVIL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

	Hours per Week
Mathematics 105 (Calculus)	5
Physics 101	5
Topographical Engineering 3, Elementary Surveying	4
Railway Engineering 1	2
Topographical Engineering 1 (Topographic Drawing)	1
Mechanical Drawing 3 (Descriptive Geometry)	3
French 16E	3

*The figures in the text refer to the numbers of the courses of study.

†Students taking second year Spanish must take it in the first semester.

‡Topographical Engineering is required of Civil Engineers, and Shop-work of Mechanical and Electrical Engineers.

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SECOND SEMESTER

	Hours per Week
Mathematics 105 (Calculus)	3½
Physics 101	5
German 3E, or Mechanical Drawing	3
Mechanics 1, 2	5
Topographical Engineering 1 (Drawing)	1
Topographical Engineering 4 (Advanced Surveying)	3
*Topographical Engineering 6 (Trigonometric Survey)	4 weeks

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Steam Engineering 7	2
Mechanical Laboratory 3	1
Structural Engineering 1 (Structural Details)	2
Railway Engineering 2	5
Hydraulic Engineering 1, 2	3

SECOND SEMESTER

Mechanics 4	2
Railway Engineering 3 (Maintenance of Way)	2
Structural Engineering 2, 3, (Masonry)	4
Structural Engineering 5a (Bridge Stresses)	3
Structural Engineering 7a (Bridge Design)	3 or 1
Astronomy 6	4
or Topographical Engineering 5 (Geodesy)	2
Hydraulic Engineering 10	2
Elective	1 to 3

Inspection tour of engineering work.

Senior Year

FIRST SEMESTER

Structural Engineering 4b (Dams and Stereotomy)	3
Structural Engineering 6, 7b (Bridge Design)	4 or 6
Hydraulic Engineering 11 (Water Supply)	3
Electric Installations 11	2
Thesis and Elective	8 or 6

*May be taken at the end of either the sophomore or junior year.

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SECOND SEMESTER

	Hours per Week
Railway Engineering 7 (Tunnels and Substructures)	1
Rivers and Canals 1	1
Electrical Installations 11	2
Applied Electromagnetism 2	2
Contracts and Specifications 1	1
Thesis and Elective	13

In the senior year opportunity is given to select groups of electives in Railway, Structural, Hydraulic, or Geodetic Engineering; or the student may select studies so as to secure a more general course. Details of the various courses offered are given on subsequent pages.

For the statement of the five-year course see Index under Five and Six-Year Courses.

SANITARY ENGINEERING COURSE

Freshman and Sophomore Years

Same as the Civil Engineering Course.

Junior Year

FIRST SEMESTER

	Hours per Week
Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Hydraulic Engineering 1, 2	3
Railway Engineering 2	5
Chemistry 12	3
Structural Engineering 1	2

SECOND SEMESTER

Mechanics 4 (Testing Laboratory)	2
Railway Engineering 3 (Maintenance of Way)	2
Structural Engineering 2, 3, 4a (Masonry)	4
Structural Engineering 5a, 7a (Bridge Stresses, Roof and Bridge Design)	6
Hydraulic Engineering 10	2
Roads and Pavements	2
Elective	2

*Topographical Engineering 6 (Trigonometric Survey) 4 weeks
Inspection tour of engineering works.

*May follow either the sophomore or junior year.

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Senior Year

FIRST SEMESTER

	Hours per Week
Steam Engineering 7 (Steam Engine)	2
Mechanical Laboratory 3	1
Structural Engineering 4b (Dams and Stereotomy)	2
Hydraulic Engineering 11, 13 (Water Supply)	5
Steam Engineering 8 (Heating and Ventilation)	3
Bacteriology 1	3
Electrical Installations 11	2
Elective	2

SECOND SEMESTER

Railway Engineering 7 (Tunnels and Substructures)	1
Hydraulic Engineering 12, 13 (Sewerage and Drainage)	5
Bacteriology 8	3
Electrical Installations 11	2
Applied Electrochemistry 2	2
Contracts and Specifications	1
Thesis and Elective	6

MECHANICAL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

Mathematics 104 (Analytical Geometry, Calculus)	5
Physics 101	5
Shop Work	4
German 3E, French 16E, or Spanish 5E	3
Mechanical Drawing 3 (Descriptive Geometry)	3

SECOND SEMESTER

Mathematics 104	5
Mechanics 1, 2	5
Physics 101	5
Machine Design 1 (Mechanism)	4
Shop Work	1

Shop-work; four weeks vacation work. See Index under Shop Work.

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Junior Year

FIRST SEMESTER

	Hours per Week
Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Steam Engineering 1, 2 (Thermodynamics, Heat Engines)	5
Machine Design 3	5
Shop Work	2
Mechanical Laboratory 5	1

SECOND SEMESTER

Mechanics 4	1
Hydraulic Engineering 1, 2	3
Steam Engineering 3, 4 (Boilers, Valve Gears)	5
Mechanical Laboratory 1	1½
Machine Design 3	5
Shop Work	3
Elective	2 or 3

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Applied Electro-Magnetism 2, 3 (Electrical Machinery, Laboratory)	5
Mechanical Laboratory 2	1½
Hydraulic Engineering 4	3
Steam Engineering 5 or, 10, or Machine Design 5	3
Commercial Engineering 1	2
Thesis and Elective	6

Inspection tour through industrial establishments.

Either Steam Engineering 5, or Machine Design 5, must be taken. The study selected must be taken for the entire year.

SECOND SEMESTER

Contracts and Specifications	1
Alternating Currents 2, 7 (Elementary Applied)	5
Commercial Engineering 2	8
Mechanical Laboratory 4	1
Thesis and Elective	8

For the statement of the five-year course see Index under Five and Six-Year Courses.

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ELECTRICAL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

	Hours per Week
French 16E, German 3E, or Spanish 5E	3
Mathematics 104 (Analytical Geometry and Calculus)	5
Physics 101	5
Chemistry 12	3
Machine Design 1 (Mechanism)	4

SECOND SEMESTER

Mathematics 104	5
Physics 101	5
Chemistry 12	2
Mechanics 1, 2	5
Mechanical Drawing 3 (Descriptive Geometry)	3

Shop-work; four weeks vacation work. See Index under Shop Work.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
*Physics 104 (Precision of Measurement)	2½
Applied Electromagnetism 1 (Electromagnetism and Dynamos)	3
Steam Engineering 6 (Thermodynamics)	2
Machine Design 2	3
Shop Work	2

*Physics 104 may be postponed until the Senior year by students who elect Mathematics 110.

Juniors in Electrical Engineering who expect to follow the technical rather than the commercial phase of electrical engineering are strongly urged to elect Mathematics 110, which is a three unit-hour course designed particularly for electrical engineering students.

SECOND SEMESTER

Hydraulic Engineering, 1, 2	3
Steam Engineering 6 (Thermodynamics)	2
Mechanical Laboratory 1	1½

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	Hours per Week
Applied Electro-Magnetism 1, 2 (Electro-Magnetism and Dynamos)	5
Alternating Currents 1	3
Mechanics 4	1
Machine Design 2	2
Electives in Civil and Mechanical Engineering and Mathematics 110	3

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Alternating Currents 2, 3	5
Applied Electro-Magnetism 2 (Testing Direct Current Dynamos) and Dynamo Design	1
Applied Electro-Magnetism 4	1
Mechanical Laboratory 2	1½
Hydraulic Engineering 4	3
Electives from: Electrical Installations 3, 5, 7, 8, 10, Applied Electrochemistry or Ry. Engineering 4 and Mathematics 110	7
Thesis	2

SECOND SEMESTER

Alternating Currents 3, 2	5
Electives from: Electrical Installations 2, 4, 5, 6, 8, Alternating Currents 3, Applied Electrochemistry 2, Structural Engineering 9, Railway Engineering 4b and Mathematics 110	8
Contracts and Specifications	1
Thesis and Elective	5

For the statement of the five-year course see Index under Five and Six-Year Courses.

Graduates and advanced students are offered instruction in advanced theory, design, and experimental investigations relating to electrical engineering and applied electrochemistry, as is more fully explained in later pages under Departments of Instruction and also under the Graduate School. (See Index.)

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CHEMICAL ENGINEERING COURSE

Sophomore Year

FIRST SEMESTER

	Hours per Week
German 3E or French 16E	3
Mathematics 105 (Calculus)	5
Physics 101	5
Mechanical Drawing 3	3
Chemistry 12 (Analytical)	4

SECOND SEMESTER

Mathematics 105 (Calculus)	3½
Mechanics 1, 2	5
Physics 101	5
Machine Design 1	3
Chemistry 12 (Analytical)	4

Shop work; four weeks summer term; may be taken during any summer vacation.

Junior Year

FIRST SEMESTER

Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Steam Engineering 6	2
Machine Design 2	3
Chemistry 20 (Organic)	5
Physical Chemistry	2

SECOND SEMESTER

Mechanics 4 (Testing Laboratory)	1
Machine Design 4	2
Steam Engineering 6	2
Mechanical Laboratory	2½
Hydraulics 1, 2	3
Structural Engineering 2	2
Physical Chemistry	4
Chemical Technology 1	2

Inspection tour through industrial establishments.

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Senior Year

FIRST SEMESTER

	Hours per Week
Electrical Installations 11	2
Applied Electromagnetism 2	2
Mechanical Laboratory 2	1½
Chemical Technology 2	2
Chemical Technology 5	3
Thesis and Elective	10

SECOND SEMESTER

Electrical Installations 11	2
Hydraulic Engineering 5	3
Chemical Technology 3	2
Chemical Technology 4	5
Contracts and Specifications	1
Thesis and Elective	7

Courses from which electives may be chosen:

Applied Electrochemistry 1, 2, 6, 7.
Chemical Technology 6, 7, 8.
Advanced Physical Chemistry.
Advanced Inorganic Chemistry.
Advanced Organic Chemistry.
Geology.
Mineralogy.
Assaying.
Bacteriology.
Steam Engineering 9.
Structural Engineering 11.

For students who wish to specialize in gas engineering or to fit themselves for any particular line of work, a fifth year is recommended. At the completion of such fifth year, including the preparation of a thesis, the degree of Chemical Engineer will be granted.

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APPLIED ELECTROCHEMISTRY COURSE

Freshman and Sophomore Years

Same as the Chemical Engineering Course.

Junior Year

FIRST SEMESTER

	Hours per Week
Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Applied Electro-Magnetism 1	3
Chemistry 20 (Organic)	5
Chemistry 31 (Electrochemistry)	4

SECOND SEMESTER

Applied Electro-Magnetism 1, 2	5
Mechanics 4 (Testing Laboratory)	1
Chemistry 31 (Electrochemistry)	5
Chemical Technology 1	2
Hydraulics 1, 2	3
Elective	4

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Applied Electrochemistry 1	5
Chemical Technology 5	3
Steam Engineering 7	2
Mechanical Laboratory 3	2
Thesis and Elective	8

SECOND SEMESTER

Alternating Currents 7	3
Applied Electrochemistry 2	5
Chemical Technology 4	5
Contracts and Specifications	1
Thesis and Elective	6

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GENERAL ENGINEERING COURSE

There is a strong demand in various industrial and commercial lines for technically educated men who cannot be classified as engineers, properly speaking. Superintendents and managers, presidents and secretaries, owners and members of boards of directors, of all large manufacturing and commercial enterprises, as well as of all transportation, lighting, and power companies, should be acquainted with the fundamental principles and practices of some of the ordinary applications of science to modern industry. For the practical education of such men a General Engineering Course has been established, with only the fundamental engineering sciences required, in addition to the regular work of the freshman year. This leaves about one-third of the entire time to be filled by such elective studies in the College of Engineering, or in other Colleges of the University, as the student may find best suited to his particular needs. It may well be also that some students who expect to practice engineering will prefer to elect a considerable portion of their course in place of taking any one of the fixed engineering courses.

The subjects given below are the ones which are required. Elective studies must be arranged to secure continuity of work and must be approved by the student adviser.

Freshman Year

All the studies of this year are required, and are the same as in the other engineering courses.

Sophomore Year

FIRST SEMESTER

	Hours per Week
Mathematics 105	5
Physics 101	5
Mechanical Drawing 3 (Descriptive Geometry)	3
German 3E, French 16E; either first or second semester	3
Elective	4

SECOND SEMESTER

Mathematics 105 (Calculus)	3½
Physics 101	5
Mechanics 1, 2	5
Elective	6

Shop or field work, four weeks' summer term; may be taken at the end of either the sophomore or junior year.

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Junior Year

FIRST SEMESTER

	Hours per Week
Mechanics 2, 3	6
Mechanics 4 (Testing Laboratory)	2
Steam Engineering 6	2
Hydraulic Engineering 1, 2	3
Elective	7

SECOND SEMESTER

Mechanics 4 (Testing Laboratory)	1
Steam Engineering 6	2
Mechanical Laboratory 3	1½
Elective	16

Inspection tour through industrial establishments.

Senior Year

FIRST SEMESTER

Applied Electro-Magnetism 2 and 3	5
Elective	15

SECOND SEMESTER

Contracts	1
Thesis and Elective	19

A two or three-hour course in Hydraulic Engineering must be taken in the senior year.

MINING ENGINEERING GROUP OF ELECTIVES

Students who take the General Engineering Course may group their electives in chemistry, mineralogy, and geology in such a way as to prepare them for mining engineering. The arrangement of these electives, together with such other studies as are most desirable in a mining course, is as follows:

Sophomore Year

FIRST SEMESTER

	Hours per Week
Chemistry 12, 13	5
Topographical Engineering 3	3½

SECOND SEMESTER

Chemistry 12, 13	5
Topographical Engineering 9, 10	4

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Junior Year

FIRST SEMESTER

	Hours per Week
Mineralogy 6	5
Geology 1	5

SECOND SEMESTER

Mineralogy 6	5
Geology 2, 3	5
Structural Engineering	2

Senior Year

FIRST SEMESTER

Railway Engineering 1	4
Machine Design 3	2
Geology 11 and one of courses 14 to 18	6
Mineralogy 8	5

SECOND SEMESTER

Railway Engineering 7	2
Structural Engineering 9	3
Geology 11, and one of courses 12, 14 to 18	6
Mineralogy 9	3

The course of study here outlined is arranged with special reference to the needs of those who expect to work in the Lake Superior region.

The professors in the department of Geology, in the College of Letters and Science, have for many years been engaged in the investigation of the mining resources of the Northwest for the United States Geological Survey, and they offer training for mining work in this field. Attention is also given to the zinc and lead district of southwestern Wisconsin. Students who continue work in geology in a graduate course may qualify themselves for work in mining geology (as distinguished from technical mining engineering).

If desired, students taking the mining group will usually be able to obtain their degree in Mining Engineering at a mining school in one additional year.

A five-year course for Civil Engineering students offering larger options in mining geology and similar elections along any line

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of geological work, and leading to the degree of *Bachelor of Science, Civil Engineering Course*, is outlined below. This is a more desirable course than the one given above.

MINING ENGINEERING COURSE

Provision has been made for the establishment at once of a department of Mining Engineering in the College of Engineering. A complete course in Mining Engineering will be arranged and instruction offered at the opening of the academic year 1908-09. Details of this course may be had on application.

FIVE OR SIX-YEAR COURSES

COURSE IN CIVIL ENGINEERING

Leads to the degree of *B. S., Civil Engineering Course*, at the end of five years, and the degree of *C. E.* at the end of six years.

First Year

FIRST AND SECOND SEMESTERS

	Hours per Week
Mathematics 101, 102, 103	5
German 2E, French 5E or Spanish 2EC	4
Chemistry 2	3
English 1	3
Elective	3

Second Year

FIRST AND SECOND SEMESTERS

Mathematics 105	5
Physics 101	5
Mechanical Drawing 1 and 2	3
Elective	5

Third Year

FIRST SEMESTER

Mechanics 1 and 2	5
Mechanics 4	2
Topographical Engineering 2 and 3	4
Mechanical Drawing 3	3
Railway Engineering 1	2
Elective	3 to 4

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SECOND SEMESTER

	Hours per Week
Mechanics 2 and 3	6
Mechanics 4	1
Topographical Engineering 1 and 4	4
Structural Engineering 2, 3, 4a	4
Elective	4 to 6

Fourth Year

FIRST SEMESTER

Hydraulic Engineering 1, 2	3
Steam Engineering 7	2
Mechanical Laboratory 1	1
Railway Engineering 1	5
Structural Engineering 1, 4b	5
Elective	5

SECOND SEMESTER

Hydraulic Engineering 10	2
Structural Engineering 5a, 7a	6
Railway Engineering 3	2
Topographical Engineering 5	2
or Astronomy	4
Elective	5 to 7

Fifth Year

FIRST SEMESTER

Structural Engineering 6, 7b	4
Hydraulic Engineering 11	3
Elective in Engineering	7
Thesis and Elective	6

SECOND SEMESTER

Railway Engineering 7	1
Rivers and Canals	1
Engineering Contracts and Specifications	1
Elective in Engineering	11
Thesis and Elective	6

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Sixth Year

Sixth year work will be arranged for as graduate work.

The thesis for the baccalaureate degree may be written in any department of the University, subject to the approval of the Engineering faculty.

Courses in Mechanical and Electrical Engineering, and in Applied Electrochemistry, similar to the foregoing course in Civil Engineering have been arranged in which the special work of the respective course replaces the Civil Engineering studies here given. Detailed statements of these courses, together with full information regarding the various departments, are contained in the special announcement of the College of Engineering, which may be had by addressing the Dean of the College.

COMBINATION ENGINEERING AND COMMERCE COURSE

By electing the following group of studies in Economics, students pursuing the five-year course may get all the essential studies of the Course in Commerce, together with a full engineering course.

First Year: Physiography and Physical Geography, 3 hours.

Second Year: Elementary Economics, 3 hours for one semester; Commercial Geography, 3 hours for one year.

Third Year: Money and Banking and Transportation, 3 hours; Commercial Law, 3 hours.

Fourth Year: Group in Banking and Finance, Transportation, or the Manufacturing Industries, 3 hours; Business Administration, 2 hours.

Fifth Year: Business Administration, 2 hours; Group and Thesis, 4 hours (if the thesis is taken in Commerce).

ELECTIVE GROUP IN GEOLOGY

For Civil Engineering students desiring to enter mining or geological work, the following group of studies is suggested:

Third Year: Mineralogy, 3 hours.

Fourth Year: General Geology, 5 hours.

Fifth Year: Elective work in Advanced Geology, and Mineralogy to be selected from courses 8—20 inclusive.

Students selecting this group should take Surveying in their second year.

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Elective for Students in the College of Letters and Science

Students who plan to graduate in engineering, after taking a degree in the College of Letters and Science, should aim to make the following elections during the undergraduate course, in order that the engineering course may be completed in two additional years:

Mathematics 101 to 105; Physics 101; Chemistry 2; Mechanical Drawing 1, 2 and 3; Topographical Engineering 2, 3, and 4, or Machine Design 1; Applied Mechanics 1.

It is well also to elect some or all of the freshman and sophomore shop work, as an extra study.

Graduation in More than One of the Engineering Courses

Graduates in any of the engineering courses may graduate in any other engineering course after one year of additional study. Students who contemplate doing this should, however, make their elections, especially in the senior year, with this end in view.

DEPARTMENTS OF INSTRUCTION

The unit of reckoning is one hour of class-room work per week, making a one-hour study. Two hours of draughting, laboratory, field, or shop work (which requires no outside preparation) count as one hour of recitation.

ENGLISH

ASSISTANT PROFESSORS BEATTY, DICKINSON; DR. WOOLEY, MR. COOK, MR. LEONARD, MR. NEIDIG, MR. NORTHROP, AND MR. ROE.

1. Freshman English. English prose style. Composition. *Three hours a week throughout the year.*

GERMAN

ASSISTANT PROFESSOR EVANS, MR. BURNS, DR. HAUSSMANN, DR. HICKS, DR. KIND, MR. DEIHL, AND MR. WILD.

2E. *First Semester:* Review of grammar. Narrative and historical prose.

Second Semester: One drama and introductory scientific prose. *Four times a week at* 8, 9, 2, *and* 3. Five sections.

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3E. Advanced scientific prose and current engineering literature. *First or second semester; M., W., F., at* 8. Two sections. For sophomores.

FRENCH

MR. SCHLATTER, MR. SHANKS, MR. MICHELL, MR. GRIFFIN, AND MR. LA MOTTE.

5E. Elementary French for Engineers. In the first semester the work will be for the most part the same as that in course 1 (College of Letters and Science), except that more attention will be paid to reading. During the second semester Herdler's *Scientific Reader* or other work of similar character will be introduced. Three sections: *Four hours a week throughout the year.* Mr. SCHLATTER, Mr. GRIFFIN, and Mr. LAMOTTE.

16E. Second Year French for Engineers. Continuation of course 5E. Reading in literary and scientific prose. Review of Grammar. *M., W., F., at* 8. Mr. SHANKS.

SPANISH

DR. ZDANOWICZ, MR. KEITH, MR. GRIFFIN, AND MR. LA MOTTE.

2EC. Elementary. Giese's *First Spanish Book* and other easy prose. *Three sections. Four hours a week throughout the year, at* 8 *and* 9. Mr. KEITH, Dr. ZDANOWICZ, Mr. LAMOTTE.

5E. Second Year. Scientific Spanish for Engineers. Reading and Grammar. *First semester; M., W., F., at* 8. Mr. GRIFFIN.

Courses 7C and 8C (see Index under French) are also open to sudents in engineering.

MATHEMATICS

PROFESSOR SLICHTER, DR. BIRKHOFF, MR. GRIMES, MR. MARCH, MR SMITH, MR. UNDERHILL, MR. WOLFF, MR. BARTHOLOMEW, AND MR TITSWORTH.

Note: All of the following courses, except 110, are repeated each semester.

101. Algebra, Trigonometry, and Graphic Methods. This course includes a variety of work in algebra, trigonometry, and

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analytic geometry, combined with drill in computation methods, use of slide rule, etc. *First semester; M., Tu., W., Th., F., (90 hours in class-room).* Required of freshmen in engineering.

102. Analytical Geometry and Trigonometry. In this course trigonometry is completed and further work in plane and solid analytic geometry is given. *Second semester; M., Tu., W., Th., F., (90 hours in classroom).* Required of freshmen in engineering.

104. Calculus. Differential and Integral Calculus. For all courses. *Throughout the year; M., Tu., W., Th., F., (90 hours in class-room).*

105. Calculus. Continuation of 104 for Mechanical and Electrical engineering courses. Elementary work in differential equations is given in this course. *Second semester; M., Tu., W., Th., F., (90 hours in class-room).*

106. Calculus. Continuation of 104 for the Civil Engineering course. *Part of second semester; M., Tu., W., Th., F., (76 hours in class-room).*

110. Higher Mathematics. Differential equations, Definite Integrals, Fourier Series, and other subjects of immediate importance to engineering students are studied in this course. Elective to juniors, seniors, and graduate students. *Throughout the year; M., W., F., at* 10.

PHYSICS

ASSISTANT PROFESSORS TAYLOR, GAGE; MR. TERRY, DR. SMITH, DR. ROEBUCK, MR. HEIL, AND ASSISTANTS.

101. General Lectures and Introductory Laboratory Practice. Required of sophomores in engineering. *Throughout the year. Lectures, M., at* 5, *Th., at* 4. Assistant Professor TAYLOR. *Two recitations in sections, at hours to be assigned.* Dr. SMITH, Dr. ROEBUCK, and Mr. HEIL. *Two laboratory periods a week.* Assistant Professor GAGE and assistants.

104. Laboratory Course in Electrical and Magnetic Measurements. Testing and calibration of electrical instruments, and determination of constants. Required of juniors in Electrical Engineering. *Two and one-half hours a week. First semester.* Mr. TERRY and Mr. BRAINARD.

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105. Advanced Electrical Measurements. Elective for those who have had course 104 or its equivalent. The determination of self-inductance, mutual inductance, capacity, etc., by the most recent methods. *Hours and credits to be arranged.* Mr. TERRY and Mr. BRAINARD.

7. High Temperature Measurements. A laboratory course in the measurements of high temperatures by the most recent optical and electrical methods. *Four laboratory hours per week accompanied by lectures every other week. Second semester; two unit-hours credit.* Professor MENDENHALL and Dr. INGERSOLL.

9. Thesis. Open to those who have completed courses 101 and either 104 or 7. Professor MENDENHALL and Assistant Professor TAYLOR.

CHEMISTRY

PROFESSORS KAHLENBERG, LENHER, ASSISTANT PROFESSOR WALTON, DR. HALL, DR. KOELKER, AND ASSISTANTS.

2. General Chemistry. For freshmen in the College of Engineering. *Three hour study. Two lectures, and two two-hour laboratory periods a week throughout the year.* Professor KAHLENBERG, Assistant Professor WALTON, and assistants.

10. Qualitative Analysis. Laboratory course accompanied by weekly lectures and recitations. *Given only in the first semester.* Required of sophomores in electrical, electrochemical and chemical engineering courses. Professor LENHER, Dr. HALL, and Mr. MOTT.

11. Quantitative Analysis. Introductory laboratory course accompanied by weekly lectures. Required of sophomores in electrical, electrochemical and chemical engineering. Professor LENHER, Dr. HALL, and Mr. MOTT.

12. Quantitative Analysis. An advanced laboratory course, being a continuation of Course 11, which must precede it. Professor LENHER.

13. Gas Analysis. A laboratory course in practical gas analysis. *First semester.* Dr. HALL.

14. Water Analysis. A laboratory course in the analysis of water and sewage. *First semester.* Dr. HALL.

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15. Electrochemical Analysis. A study of the application of the electric current to chemical analysis. *First semester.* Dr. HALL.

16. Industrial Analysis. A laboratory course in the proximate analysis of commercial products. *Second semester.* Dr. HALL.

17. Chemical Preparations. A laboratory course in the preparation of typical inorganic compounds. Professor LENHER.

20. Organic Chemistry. Lectures and Laboratory work. In the first semester the work will be chiefly on the aliphatic, and in the second semester on the aromatic compounds. *Full study throughout the year. Lectures, M., W., and six hours laboratory work.* Dr. KOELKER and Mr. JOHNSON.

24. Advanced Organic Chemistry. One lecture a week throughout the year on selected topics. Dr. KOELKER.

30. Physical Chemistry. The lectures and recitations are supplemented by laboratory exercises in physicochemical measurements. Must be preceded by Chemistry 1. *Five hours study throughout the year. Lectures and recitations, Tu., Th., at* 8. Professor KAHLENBERG and assistant.

31. Electrochemistry. Lectures and recitations. Laboratory work in electrochemical measurements supplements the lectures, and with them makes a full study. *Lectures during the first semester; W., F., at* 8. *Laboratory work throughout the year.* Professor KAHLENBERG and assistant.

32. Thermal Chemistry. *Lectures M., at* 8, *and one three-hour laboratory period a week. Second semester.* Professor KAHLENBERG.

35. Advanced Physical Chemistry. Lectures on selected topics. *Second semester; W., at* 8. Professor KAHLENBERG.

36. Advanced Electrochemistry. A course in the preparation of chemical compounds by means of electrolysis and the electric furnace. Weekly conferences accompany the laboratory work. *Full study throughout the year; hours to be arranged.* Professor KAHLENBERG and assistant.

37. Research Work in Physical Chemistry. *Daily throughout the year; hours to be arranged.* Professor KAHLENBERG.

50. Assaying. A course in practical assaying. *Second semester; hours to be arranged.* Professor LENHER and Mr. TIBBALS.

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51. Advanced Inorganic Chemistry. Special attention is given to the discussion of modern theories of chemistry. *Throughout the year; lectures Tu., Th., at* 11. Professor LENHER.

ASTRONOMY

PROFESSOR COMSTOCK.

6. Astronomical Practice. Theory and use of the simpler instruments used in astronomical and geodetic field work. Determination of time, latitude, and the direction of the meridian, together with drill in numerical computations. *Second semester; M., Tu., W., Th., 2 to* 4.

Elective for juniors in Civil, Sanitary, and General Engineering.

7. Advanced Field Astronomy. Spherical astronomy, the method of least squares, theory and practice of the more refined methods for the determination of time, latitude, and azimuth. *Two hours a week throughout the year.*

Open to election by students who have completed course 6.

GEOLOGY

PROFESSOR LEITH, ASSISTANT PROFESSORS BLACKWELDER, WINCHELL; MR. MARTIN, MR. MEAD, AND MR. STEIDTMANN.

1. General Geology. *First semester; M., Tu., W., Th., F., at* 12. Professor LEITH and Assistant Professor BLACKWELDER.
2. Applied Geology, including economic geology, map work and field geology. *Second semester; five hours credit.* Professor LEITH and Assistant Professor BLACKWELDER.
4. Physiography. *First semester; Five unit-hours. Tu., W., Th., F., at* 9, and laboratory hour to be arranged. Mr. MARTIN.

4a. Physical Geography for Commerce Students. *First semester; M., W., F., at* 10 and quiz hour to be arranged. Mr. MARTIN.

5. Geography. *Second semester; M., Tu., W., Th., F., at* 9. Mr. MARTIN.

5a. Geography of Europe. *Second semester; M., W., F., at* 10. (Omitted in 1908-09.) Mr. MARTIN.

6. General Mineralogy. *Throughout the year; M., Tu., W., Th., F., at* 11. Assistant Professor WINCHELL.

7. Short Course in Mineralogy. *Second semester; Tu., Th., F., at* 2. Assistant Professor WINCHELL and Mr. STEIDTMANN.

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8. Petrology. *First semester; M., Tu., W., Th., F., 8 to 10. Second semester; M., W., F., 8 to 10.* Assistant Professor WINCHELL.
10. Microscopic Petrology. *Second semester; M., W., F., 8 to 10.* Mr. HOTCHKISS.
11. Economic Geology. *Throughout the year; M., W., F., at 4.* Alternates with course 15. Professor LEITH.
12. Historical Geology. *Second semester; M., Tu., W., Th., F., at 9.* Assistant Professor BLACKWELDER.
13. Advanced Physiography. *Second semester; two unit-hours credit;* hours to be arranged. Mr. MARTIN.
14. Principles of Structural Geology. *First semester; Tu., Th., at 4.* Professor LEITH.
15. Metamorphism. *Throughout the year; M., W., F., at 4.* Alternates with course 11. Professor LEITH.
16. Metamorphic Rocks. Laboratory work, supplementary to course 15. *Throughout the year; Tu., W., 2 to 4.* Mr. MEAD.
17. Principles of pre-Cambrian Geology. *Second semester; Tu., Th., at 4.* Alternates with course 18. Professor LEITH.
18. Lake Superior Geology. *Second semester; Tu., Th., at 4.* Alternates with course 17. Professor LEITH.
19. Petrology of Lake Superior Rocks. *Three hours a week.* Assistant Professor WINCHELL.
20. Advanced Mineralogy. Hours to be arranged. Assistant Professor WINCHELL.
21. Paleontology. *First semester; M., W., F., at 9.* Assistant Professor BLACKWELDER.
22. Research Work for Graduates. A full or double study running through the year, as desired by individual students.
23. Geological Seminary. *F. at 5.*

BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL AND ASSOCIATE PROFESSOR FROST.

Primarily for Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *First semester; lectures and laboratory; three unit-hours.* Given in the College of Letters and Science. Associate Professor FROST and Mr. NELSON.

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Primarily for Undergraduates and Graduates

8. Biology and Chemistry of Water Supplies. Bacteriology 1 is a prerequisite study. This course considers the technique of water examination, the hygiene of water-born diseases, the examination of filters, disposal of sewage, and the interpretation of analyses, bacteriological and chemical, and laboratory work. *Three unit-hours.* Professor RAVENEL and Mr. BOWLES.

METEOROLOGY

MR. BARTLETT OF THE U. S. WEATHER BUREAU.

Elective Courses

1. Meteorology. Lectures on atmospheric phenomena. Observations with meteorological apparatus, including measurements of precipitation, pressure, wind, temperature, and humidity. *Two or three unit-hours. First semester.*
2. General Climatology. The sources and method of study of climatic data, with practical exercises. The climate of the United States. *Two or three unit-hours. Second semester.*

MECHANICAL DRAWING

PROFESSOR PHILLIPS, MR. MILLAR, MR. EGELHOFF, MR. HAMMER AND MR. WARNER.

1. Elements of Drawing. Working drawings; Sketching, Lettering, Tinting, Tracing, and Blue Printing. Tracy's *Mechanical Drawing. First semester; three two-hour drawing periods weekly; three hours credit.* Professor PHILLIPS, Mr. WARNER, Mr. EGELHOFF, and Mr. HAMMER.
   Required of freshmen in engineering.
2. Elements of Drawing. Third angle projection. Isometric and Cabinet drawing. Tracy's *Mechanical Drawing. Second semester; three two-hour drawing periods weekly; three hours credit.* Professor PHILLIPS, Mr. WARNER, Mr. EGELHOFF, and Mr. HAMMER.
   Required of freshmen in engineering.
3. Descriptive Geometry. Problems relating to the point, line and plane. The generation and classification of lines and surfaces; planes tangent to surfaces of single and double curvature; intersections, developments, and revolutions. Notes on *Descriptive Geometry.* First semester for stu-

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dents in Civil and Mechanical Engineering. *Second semester* for students in Electrical Engineering. *One lecture, one recitation, and two two-hour drawing periods weekly; three hours credit.* Mr. MILLAR and Mr. WARNER.

Required of sophomores in engineering.

4. Freehand Lettering. A continuation of the lettering work in courses 1 and 2. *First and second semesters; two one-hour periods weekly; one hour credit.* Professor PHILLIPS.

Elective for engineering students.

5. Sketching. In perspective. Architectural, bridge and machine details. *Second semester; one two-hour period weekly; one hour credit.* Professor PHILLIPS.

Elective for engineering students.

6. Mechanical Lettering. Roman and Gothic styles. *Second semester; two two-hour periods weekly; two hours credit.* Professor PHILLIPS.

Elective for engineering students.

7. Finished Drawings. Drawings finished in line and color. Preparation of drawings for zinc etching process. *First semester; one two-hour period weekly; one hour credit.* Professor PHILLIPS.

Elective for engineering students.

APPLIED MECHANICS

PROFESSOR MAURER, ASSISTANT PROFESSOR BURNSIDE, MR. KOMMERS, MR. M'CULLOUGH, MR. MILLER, AND MR. WITHEY

1. Statics. Treated, as are all the following courses, with special reference to the requirements of engineers. Resolution and composition of forces; center of gravity; principles of equilibrium with numerous applications. Graphic as well as algebraic methods are used. *First ten weeks of the second semester; M., Tu., W., Th., F., at* 10 *or* 11; *three hours credit.*

2. Mechanics of Materials. Simple tension, compression and shear; riveted joints; moment and shear diagrams; moment of inertia of plane figures; strength and stiffness of beams, columns and shafts; combined stress and resilience. *Last eight weeks of the second semester; M., Tu., W., Th., F., at* 10 *or* 11; *two hours credit. First nine weeks of the first semester; M., Tu., W., Th., F., at* 10 *or* 11, *and S., at* 8; *three hours credit.*

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3. Dynamics. Relates principally to rigid bodies; laws of motion; translation; moment of inertia and rotation; combined translation and rotation; work and energy; impulse and momentum. *Last nine weeks of the first semester; M., Tu., W., Th., F., at* 10 *or* 11, *and S., at* 8; *three hours credit.*
4. Materials of Construction. Principally laboratory work; assigned readings and reports; also the preparation and manufacture of materials. *First and second semesters. One or two hours credit.*
5. Advanced Mechanics of Materials. Inertia circle and ellipse; kern; beams of unsymmetrical section; curved beams; principle of least work; whirling shafts; revolving disks; flat plates; thick cylinders, etc. *Second semester; two hours a week.* Professor MAURER.

   Elective for students who have had course 2 or its equivalent.
6. Elements of Mechanics. A general course with emphasis on topics of special interest to the class. Algebra and trigonometry are prerequisites. *First semester; two hours a week.* Professor MAURER.

   Elective for students in the College of Letters and Science.
7. Advanced Technical Mechanics. A review and extension of the principles and equations of Dynamics as presented in course 3 with applications especially to harmonic motion, vibrations and balancing of machines. *First semester; two hours a week.* Professor MAURER.

   Elective for students who have had courses 1 and 3 or their equivalent.
8. Materials of Construction. Laboratory research.

   a. Iron and Steel. Comparative study of methods of testing machinery, and specifications. Open to seniors. *First semester; one hour credit.*

   b. Concrete. Plain: *second semester; one hour credit.* Open to juniors and seniors. Reinforced: *first semester; two hours credit.* Open to seniors who have had plain concrete. Mr. WITHEY.

   c. Brick. Complete tests of several varieties, including sand-lime brick, and comparison of results. Open to students who have had one semester of Mechanics 4. *Throughout the year; one hour credit.* Mr. MCCULLOUGH.

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TOPOGRAPHIC AND GEODETIC ENGINEERING

ASSOCIATE PROFESSOR SMITH, MR. OWEN, AND MR. PENN.

1. Topographic Drawing and Mapping. This work includes work in pen and water color topography. *Throughout the year; 64 hours in draughting room. One hour credit each semester.*
2. Elementary Surveying. Johnson's *Surveying* and Smith's *Field Manual. Throughout the year; first half of first semester and last half of second semester; one hour credit.*
3. Elementary Surveying. A continuation of course 2, and includes the field and office work of a variety of practical problems in the use of the engineer's transit and level. Special emphasis is placed on methods of computation and arrangement of data. *First semester; recitations two hours a week; field work first nine weeks, 72 hours; four hours credit.*
4. Advanced Surveying. A continuation of course 3, and includes a study of the higher instruments of precision, and their use in topographic and hydrographic surveys. *Second semester; recitations two hours a week, first twelve weeks; field work, 56 hours, last eight weeks; three hours credit.*
5. Elementary Geodesy. Text: Johnson's *Surveying. Second semester; two hours credit.*
6. Trigonometrical Survey. Field work for illustrating course 5. Each year a portion of the region in the vicinity of Portage, Wisconsin, will be covered by an accurate triangulation, and also by a topographic and hydrographic survey. Survey begins the Monday of Commencement week, and continues for four weeks (240 hours). Associate Professor SMITH, Mr. OWEN, and Mr. PENN.
7. Advanced Geodesy. Lectures, assigned readings, field work. Wright's *Adjustment of Observations. First semester; two hours a week.*

   Elective for students who have taken courses 2, 3, 4, and 5, or their equivalents.
8. Short Course in Surveying. Planned to meet the demands of Mechanical Engineering and Electrical Engineering students for a general study of the subject including the use of both transit and level. *Second semester; three hours credit.*

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9. Rapid Topography. Adapted for training topographers for the United States Geological Survey. Use of the plane table and aneroid barometer in sketching topography.
10. Mining Surveying. Field and office work for an underground survey of the University system of tunnels. *Second semester; field work, 60 hours, two hours credit.*
11. City Surveying, Topographic and Cadastal. Lectures, assigned readings and field work. *Two hours a week.*

RAILWAY ENGINEERING

PROFESSOR PENCE, MR. WILLIAMS, AND MR. VAN ZANDT.

1. Railway Curves. An introductory course in simple curves. *First semester; 18 hours in class-room, 36 hours computation and field work.* Mr. VAN ZANDT.

2a. Railway Location and Construction. The theory of field and office work necessary to survey and construct a new railway line and to improve or reconstruct an old one. *First semester; twice a week.* Professor PENCE.

2b. Practice in Field and Office Work. In connection with course 2a. 108 *hours field and office work; three hours credit.* Mr. WILLIAMS and Mr. VAN ZANDT.

3. Maintenance of Way. A course in railway maintenance. *Second semester; twice a week.* Professor PENCE.

4. Railway Engineering. A short course in the above subjects, especially adapted to city and interurban railways, is offered as an elective to those who have had course 2 in Topographical Engineering. *First semester;* 18 *hours in class-room and* 36 *hours in the field and office.* Professor PENCE and Mr. VAN ZANDT.

5. Railway Economics. The economics of railway location and improvements; dealing with train resistance, motive power, momentum grades, the influence of distance, curvature, and rise and fall, and related matters. *First semester; twice a week.* Professor PENCE.

6. Railway Design. A course in design, including track standards, yards, shop layouts, signals, proportioning waterways, and similar practical problems. Following course 3. *Second semester; one hour class-room work and four hours drafting a week.* Professor PENCE and Mr. WILLIAMS.

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7. Tunneling and Substructures. The various methods of tunneling, shaft sinking, ordinary and deep foundation work. Cost and methods of handling earth and rock excavation. Quarrying and use and care of explosives. *Second semester; twice a week for nine weeks.* Professor PENCE.
9. Estimates and Valuations. A study of the methods of valuing railway and other public utility property. *Second semester; once a week.* Professor PENCE.

For course in railway transportation, see courses under the head of Political Economy. This course is offered as an elective to seniors and graduates in Civil Engineering.

RIVERS AND CANALS

PROFESSOR MEAD.

1. River and Harbor Improvement and Canal Construction. *Second semester; once a week.*

ROADS AND PAVEMENTS

ASSOCIATE PROFESSOR SMITH.

1. Location and Construction of Highways and City Streets. *First semester; twice a week.* Text, Baker's *Roads and Pavements.*

HYDRAULIC AND SANITARY ENGINEERING

PROFESSORS MEAD, DAVIS; MR. AYERS, MR. M'BRIDE, AND MR. ABBOTT.

1. Hydraulics. Hydrostatics and the flow of water over weirs, and through orifices, pipes and open channels. *First semester; two hours a week.* Mr. DAVIS and Mr. AYERS.
2. Hydraulic Laboratory. Elementary course. 36 *hours in laboratory. Either semester.* Professor DAVIS, Mr. AYERS, and Mr. ABBOTT.
3. Hydraulic Laboratory. Advanced experimental and thesis work. Professors MEAD, DAVIS and Mr. AYERS.
4. Water Power. Stream flow, hydraulic power development and test of motors and appliances. *First semester; three times a week.* Professor MEAD and Mr. MCBRIDE.
5. Hydraulic Machinery. Water wheels, motors, pumps and other machines. *Second semester; twice a week.* Professor MEAD and Mr. MCBRIDE.

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10. Hydrology. Physiography, hydrogeology, and hydrography in relation to water power, water supply and sanitary works. *Second semester; twice a week.* Professor MEAD and Mr. MCBRIDE.
11. Water Supply Engineering. *First semester; three times a week.* Professor MEAD and Mr. MCBRIDE.
12. Sewerage, Drainage, and Irrigation. *Second semester; twice a week, or three times a week for those who desire special instruction in any of these subjects.* Professor MEAD and Mr. MCBRIDE.
13. Hydraulic Design. Design of various features of hydraulic and sanitary works. *One or both semesters; four hours draughting a week.* Professor MEAD.
14. Rivers and Canals. River and harbor improvement and construction. *Second semester; once a week.* Professor MEAD.

STRUCTURAL ENGINEERING

PROFESSOR TURNEAURE, ASSISTANT PROFESSOR BURNSIDE, MR. WILLIAMS, MR. KINNE, AND MR. PARKER.

1. Structural Details. The designing of simple forms of members and of joints in wood and iron, and of wooden roof and bridge trusses. *First semester; draughting four hours a week.* Mr. KINNE and Mr. PARKER.
2. Masonry Construction. Theory governing the design of masonry structures and foundations. *Second semester; two hours a week in class-room.* Mr. WILLIAMS.
3. Masonry Arches. A discussion of the theory of the stability of masonry arches followed by the complete design of an arch including working drawings. *Second semester; two-hours study.* Mr. WILLIAMS.
4. Masonry Dams and Stereotomy. A design for a high masonry dam is made, followed by several problems in stereotomy. *First semester; three hours study.* Mr. WILLIAMS.

5a. Bridge Stresses. Simple bridge trusses. *Second semester; three times a week.* Mr. KINNE.

5b. Bridge Stresses. Suspension, swing, cantilever, and arch bridges. *First semester; twice a week.* Professor TURNEAURE.

6. Bridge Design. Theoretical considerations. *First semester; once a week.* Professor TURNEAURE.

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7. Designs and Estimates. In this course each student makes a complete design of one structure of each class mentioned below, prepares detail drawings, and makes an estimate of the quantity of material and cost; complete working drawings are made of at least one structure.

7a. Roof Trusses, and Plate Girders. *Second semester;* 108 *hours in draughting room.* Mr. KINNE and Mr. PARKER.

7b. Riveted and Pin-Connected Trusses. *First semester; with course* 6 *makes a four-hour study.* Mr. KINNE and Mr. PARKER.

7c. Swing Bridges. Design of truss, turntable, and operating machinery. *Second semester;* 72 *hours in draughting room.* Professor TURNEAURE.

Elective for seniors and graduates in Civil Engineering.

8. Advanced Theory and Experimental Work. Higher structures, secondary stresses, and tests on bridges under moving loads. *One or two semesters; two hours a week.* Professor TURNEAURE.

Open to seniors and graduates.

9. Structural Design. A short general course in the designing of roofs and buildings designed for students in mechanical and electrical engineering. *Second semester; three times a week.* Mr. KINNE.

10. Reinforced Concrete Structures. Theory and design. *Second semester; twice a week.* Professor TURNEAURE.

11. Building Construction. Elementary course open to all engineering students. *One or both semesters; two hours a week.* Assistant Professor BURNSIDE.

STEAM ENGINEERING

ASSISTANT PROFESSOR THORKELSON, MR. HUELS, AND MR. SHEALY.

1. Thermodynamics. This course covers those principles of the mechanical theory of heat which are preliminary to the study of the various kinds of heat engines. *First semester, first ten weeks;* 50 *hours in classroom.* Pre-requisites, Sophomore Engineering Physics and Mathematics. Assistant Professor THORKELSON.

2. Thermodynamics. The theory of various types of heat engines, such as the hot air engine, gas engine, steam engine and steam turbine is discussed, together with the principles

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to be followed in order to secure maximum economy. *First semester, last eight weeks;* 50 *hours in class-room.* Pre-requisite, course 1. Assistant Professor THORKELSON.

3. Steam Boilers. The general subject of combustion and its application to steam boilers of various types is studied together with such subjects as steam piping, heaters, pumps and other boiler auxiliaries. The study is partly taught by lectures. *Second semester, last nine weeks;* 45 *hours in class-room.* Pre-requisite, courses 1 and 2. Assistant Professor THORKELSON.
4. Valve Gears of Steam Engines. Methods of designing valve gears for engines of various types, for stationary, marine, and locomotive service, are discussed and accompanied by problems in class and drafting room. *Second semester, first nine weeks;* 18 *hours in class-room,* 54 *hours drafting.* Pre-requisite, courses 1 and 2. Assistant Professor THORKELSON and MR. SHEALY.
5. Design of the Steam Engine. The principles covering the design of such parts of the steam engine as the cylinder, piston, crank shaft, fly wheel and governor, are studied, and each student is required to complete calculations and drawings for these parts. *First twelve weeks of first semester; class-work two hours a week, drafting six hours a week.* Followed by course 1 in Commercial Engineering. Pre-requisite, courses 1, 2, 3 and 4. Assistant Professor THORKELSON.
6. Short Course in Thermodynamics. An abbreviated course in the theory and principles underlying the construction, design and operation of steam engines, gas engines and boilers of various types. For electrical and general engineering students. *First and second semesters; twice a week.* Pre-requisite, Sophomore Engineering Physics and Mathematics. Mr. HUELS.
7. Course in Steam Engineering for Civil Engineers. An information course covering the more important types of engines and boilers, for civil engineers. *First semester; two hours a week.* Pre-requisite, Sophomore Engineering Physics and Mathematics.
8. Heating and Ventilation. An elective study open to all students who have completed courses 1 and 2 or course 6. This study covers the principles and theory of modern

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systems of heating and ventilating buildings of various types and is accompanied by problems involving the design and specifications for such systems. *First semester; three times a week.* Mr. SHEALY.

9. Gas and Gasoline Engines. An elective study open to all students who have completed courses 1 and 2 or course 6. This study covers the theory and design of gas and gasoline engines, gas producers and such details as the carburrettor, governor, ignition device, etc. *Second semester;* 18 *hours in class-room.* Assistant Professor THORKELSON.

10. Gas Engine Design. An elective course open to students who have completed course 2. The principles governing the design of the more important parts of various types of gas and gasoline engines are studied, and each student is required to complete calculations and drawings for a simple engine. *First twelve weeks of first semester; class work two hours a week, drafting six hours a week.* Followed by course 1 in Commercial Engineering. Assistant Professor THORKELSON.

11. Compressed Air and its Application. An elective study open to students who have completed courses 1 and 2 or course 6 or 7 and devoted to the theory and principles governing the economical production and various applications of compressed air. *Second semester; two hours a week.* Mr. SHEALY.

12. Steam Turbines. An elective study open to students who have completed courses 1 and 2 or course 6. Lectures and drafting room work on the theory and design of the principal types of steam turbines. *Second semester;* 12 *hours in classroom,* 48 *hours in drafting room.* Assistant Professor THORKELSON.

13. Refrigeration and Refrigerating Machinery. An elective study open to students who have completed courses 1 and 2 or course 6. The principles and methods of producing low temperatures artificially are studied together with the construction, operation and application of refrigerating machinery. *Second semester; two hours a week.* Mr. SHEALY.

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MECHANICAL LABORATORY

PROFESSOR RICHTER, MR. HUELS, MR. ATWOOD, AND MR. SHEALY.

1. Calibration of Instruments, and the determination of efficiencies of simple machines. *Second semester; three hours a week.*

   Required of juniors in Mechanical and Electrical Engineering.

2. Determination of the Efficiencies and Losses occurring in the steam boiler, and steam, gas and gasoline engines, and air compressors. Determination of power plant losses and efficiences. *First semester; three hours a week.*

   Required of seniors in Mechanical and Electrical Engineering.

3. Abridged Course. *Three hours a week during the last twelve weeks of the first semester.*

   Required of juniors in Civil Engineering and the Electro-Chemical course, and seniors in Sanitary Engineering. *Four hours a week. Three hours a week during the second semester.* Required of Juniors in General Engineering.

4. Superheated Steam, Gas and Producer gas engines. Efficiencies and construction of refrigerating plants. Fuel and gas analysis. *Second semester; two hours a week.*

   Required of seniors in Mechanical Engineering.

5. Transmission of Power. Determination of losses in belt and similar transmission. Screw and gear friction, oil testing, etc., illustrating problems in the design of machinery. *First semester; two hours a week.*

   Required of juniors in Mechanical Engineering.

6. Calibration of Instruments. Determination of efficiencies and losses occurring in heat engines and their auxiliaries. Power station losses and efficiencies. The above is followed by work along the line the student wishes to follow. Gas Engineering students will pay particular attention to the prime movers involved in or using a product of gas manufacture. *First semester; five hours a week. Second semester; three hours a week.*

   Required of juniors and seniors in Chemical Engineering.

7. Determination of the constituents of air in rooms and buildings. This course must be accompanied by course 8 in Steam Engineering. *First semester; two hours a week.*

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8. Advanced Laboratory Work. Advanced courses will be offered in any of the different lines of experimental work, to conform with the special line of work the student wishes to follow. Stress will be laid on original research and investigation. *Tu., Th., at hours to be arranged.*
Open to graduate students and to those who have completed the required courses in the line they wish to follow.

MACHINE DESIGN

PROFESSOR MACK, ASSISTANT PROFESSOR VOSSKUEHLER, AND MR. KEOWN.

1. Mechanism. The relative motions of machine parts, including belting, toothed gears, cams, chains, rachets and linkages. *Repeated each semester; one lecture, one recitation and four hours drafting a week.* Prerequisite Mechanical Drawing 1 and 2. MR. KEOWN.
2. Machine Design for Electrical Engineering. A study of mathematical and empirical methods for the design of machine parts and complete machines, with a parallel draughting course conforming to the requirements of modern draughting practice. This course is a condensation of courses 3 and 4, arranged for the electrical engineering students. Prerequisite, Machine Design 1, Mechanics 1, 2. *Throughout the year. First semester; one recitation and four hours drafting a week and an occasional lecture. Second semester; one recitation and three hours drafting a week.* Assistant Professor VOSSKUEHLER.
3. Machine Design for Mechanical Engineering. A continuation of mechanical drawing and Kinematics as applied to the making of shop drawings. Problems in the determination of sizes and proportions involving empirical and elementary mathematical methods. A study of the application of the principles of mechanics to the design of machine elements and complete machines. Prerequisite, Machine Design 1, Mechanics 1 and 2. *Throughout the year; one lecture, one recitation, and eight hours drafting a week.* Professor MACK and Assistant Professor VOSSKUEHLER.
4. Machine Design for Chemical Engineering. A study of and practice in the design of pumping, filtration, sugar, oil, and other machinery used in the chemical engineering indus-

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tries. Prerequisite, three hours from Machine Design, and first semester of Machine Design 2. *Second semester; one lecture and three hours drafting a week.* Assistant Professor VOSSKUEHLER.

5. Machine Design. Continuation of course 3. Design of special and automatic machinery, jigs and fixtures. Application of patent records and practice to engineering design. *First twelve weeks of first semester; two hours class and six hours drafting a week.* Followed by Commercial Engineering 1. Professor MACK, Assistant Professor VOSSKUEHLER.
6. Patent Office Drawing. A course giving practice in the preparation of drawings required by the U. S. Patent Office. *One hour credit. Time arranged upon consultation.* Professor MACK.

   Open to all who have had course 1 in Mechanical Drawing.
7. Special and Automatic Machinery. *Four hours drafting a week.* Mr. KEOWN.

   Students in Civil, Sanitary, or General Engineering electing special work in Machine Design, should have the same prerequisites as noted in course 5.

APPLIED ELECTROMAGNETISM AND THE CONSTRUCTION OF DYNAMOS

MR. BURBER, MR. FLAMMER, MR. LOEW, MR. PRICE, MR. SANFORD, MR. WATSON.

1. Electromagnets and Dynamos. A discussion of the simple forms of electromagnets; the development of the laws of magnetization by electric currents; the laws of simple magnetic circuits and the windings of electromagnets; the practical design, construction, management, and testing of dynamos. *Throughout the year.* Mr. WATSON.
2. Testing Direct-Current Dynamos. Laboratory work with generators, motors, and necessary apparatus. For undergraduates. *Throughout the year.* Mr. BURBER, Mr. FLAMMER, Mr. PRICE, Mr. SANFORD.
3. Electrical Machinery and Appliances. A short course in the theory, construction, management, and testing of direct-current generators, motors, and sundry appliances. *First semester.* Mr. LOEW.

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4. Dynamo Design. The complete design of a dynamo is required of each student. For seniors and graduates. Mr. WATSON.

COMMERCIAL MECHANICAL ENGINEERING

PROFESSOR MACK, ASSISTANT PROFESSORS THORKELSON, VOSSKUEHLER, SUPERINTENDENT STEEN, AND MR. SHEALY.

1. A study of the commercial side of mechanical engineering including; the principal factors controlling costs, methods of determining the depreciation of machinery and industrial plants, inventories and valuations of existing properties. *Last six weeks of first semester.*
2. A study of the principles underlying the selection of power units, including load curves, fixed and operating charges, etc., accompanied by lectures on power plant buildings, design and estimates. Each student is required to prepare complete designs and estimates in the drafting room for a small direct current power plant. A course of lectures is also given on shop equipment and lay out for manufacturing a given product in a certain quantity. Each student will make a layout of the machinery for a typical plant. These lectures include shop management, methods of remunerating labor and the effects upon the cost of production. A series of lectures will be given by Professor Burchell on the business organization of a manufacturing company. *Second semester; two lectures and six hours in drafting room per week.*

ALTERNATING CURRENTS AND ALTERNATING-CURRENT MACHINERY

ASSOCIATE PROFESSOR BEEBE; MR. WATSON, MR. BURRER, MR. FLAMMER, MR. PRICE, AND MR. SANFORD.

1. Theory of Alternating Currents. This course deals with the fundamental laws governing alternating current phenomena. Serves as an introduction to the courses in alternating current machinery which are required in the senior year. *Second semester. Three unit-hours.* Mr. WATSON.
2. Testing Alternating-Current Machinery and Appliances. The testing and operation in the laboratory of single-phase and polyphase alternating-current generators, motors, trans-

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formers, meters, and other appliances. *Throughout the year.* Mr. BURBER, Mr. FLAMMER, Mr. PRICE, Mr. SANFORD. For seniors and graduates.

3. Alternating Current Machinery. Pre-requisite, course 1 or its equivalent. Deals with the theory and operation of alternating current apparatus, both single phase and polyphase. *Throughout the year; three unit-hours.* Associate Professor BEEBE.
4. Advanced course in laboratory testing of alternating current apparatus. Open to those who have had equivalent of course 2. Mr. PRICE.
6. Advanced Course in Alternating Currents. Discussion of properties of alternating-current circuits and machinery including the effects of resonance, protecting the circuits from lightning, etc. The methods of vector algebra are demonstrated and used throughout the course. *Throughout the year.* Associate Professor BEEBE.

   Open to graduates and others with requisite preparation.
7. Elementary Applied Alternating Currents. A short course in the theory, construction, management, and testing of alternating-current machinery and appliances. *Second semester.* Mr. LOEW.

   Open to all who have completed the equivalent of one semester of Applied Electromagnetism 3.

ELECTRICAL INSTALLATIONS

PROFESSOR ENSIGN, ASSOCIATE PROFESSOR BEEBE, ASSISTANT PROFESSOR SHUSTER, MR. WATSON, MR. WICKENDEN, AND MR. BURBER.

2. Telephones and Telegraphs. The construction, testing, maintenance, and operation of lines and appliances used in telephony, telegraphy, and electric signaling. For undergraduates. *Second semester; three times a week.* Mr. WICKENDEN.
3. Electrical Testing. Laboratory practice in insulation and breakdown tests, location of faults, testing insulators, etc. Study of the phenomena produced by high pressures on electric circuits. *First semester; twice a week.* Mr. WICKENDEN.

   Open to seniors and graduates.

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4. Electric Lighting and Transmission of Power. Theory and practice in the construction and operation of lines. The construction of appliances for the transmission and distribution of electric power. *Second semester; three times a week.* Assistant Professor SHUSTER.

5. Graduate Conference. A conference or seminary for the detailed study of engineering problems. Professor ENSIGN, Associate Professor BEEBE, Assistant Professor SHUSTER.

   Open to seniors and graduates.

6. Electric Railways. The road-bed, rolling stock, electric circuits, and power plants. Location, construction, and operation. *Second semester; three times a week.* Assistant Professor SHUSTER.

   Open to seniors and graduates.

7. Industrial Applications of Electricity. The applications of electricity to industrial uses not specifically taken up in other courses. Mining and quarrying, applications to machine tools, etc. *First semester; twice a week.* Assistant Professor SHUSTER.

   Open to seniors and graduates.

8. Central Stations. Design, management, and estimates. *First semester; three times a week; second semester, twice a week.* Assistant Professor SHUSTER.

   Open to seniors and graduates.

9. Inspection Tours. An inspection tour to large industrial centers is made during the Easter recess. Each student is expected to accompany one of these parties during the last two years of his course or otherwise gain the equivalent thereof. The tours comprise visits to Milwaukee, Chicago, Pittsburg, Niagara Falls, and other manufacturing centers, for the purpose of inspecting manufacturing plants and great engineering works under operation or construction.

10. Illumination and Photometry. The distribution and measurement of light and comparison of sources of illumination. Manufacture and use of electric lamps. *First semester; two hours in class-room. One hour or two hours per week in laboratory.* Mr. WICKENDEN.

    Open to seniors and graduates.

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11. Elements of Electrical Engineering. A general course particularly designed for students in Civil and Chemical Engineering. *Throughout the year.* Mr. LOEW.
Open to juniors and seniors.

APPLIED ELECTROCHEMISTRY AND ELECTRO-METALLURGY

PROFESSOR BURGESS, DR. WATTS, AND MR. KOWALKE.

1. Laws, Principles, and Theories Involved in Electrolytic Phenomena, and their application in the electro-deposition of metals for plating, electrotyping and refining, and in electrochemical generation and storage of electrical energy. Class-room and laboratory instruction. Must be preceded by courses in chemistry. *First semester; five times a week.* Professor BURGESS, Dr. WATTS, and Mr. KOWALKE.
Required of seniors in Applied Electrochemistry. Open to seniors and graduates.
2. Industrial Applications of Electrochemistry. A study of the various electrochemical and electrothermal products and processes which have become of technical importance dealing especially with the electric furnace. *Second semester; twice a week in class, and two or more times in laboratory.* Professor BURGESS, Dr. WATTS, and Mr. KOWALKE.
Required of seniors in Applied Electrochemistry. Open to all students who have completed course 1.
3. Laboratory Work. Lines of experimental investigation assigned by instructors, together with occasional conferences and written dissertations. *Throughout the year; three or five times a week.* Professor BURGESS, Dr. WATTS, and Mr. KOWALKE.
Elective for students who have completed course 1 and 2 and the course in Theoretical Electrochemistry.
4. Short Course, dealing with principles of electrochemistry and their various industrial applications. *First semester; once a week in class and one or more periods per week in laboratory. Open to juniors and seniors.* Professor BURGESS and Dr. WATTS.
6. Batteries, Construction testing, and operation of primary and storage cells. Open to all juniors and seniors. *Second semester; one recitation and one or more laboratory periods a week.* Professor BURGESS and Dr. WATTS.

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CHEMICAL TECHNOLOGY

PROFESSOR BURGESS, ASSISTANT PROFESSOR DICKERMAN, MR. WICKENDEN, AND MR. KOWALKE.

1. Chemical Machinery and Appliances. General operations, such as crushing, grinding, separation by the wet and dry methods, filtration, distillation; problems involving the application of thermodynamic principles to evaporation, drying, and refrigeration; various types of apparatus used for carrying on these processes. *Second semester; two hours a week.* Professor BURGESS.
2. Technical Fuel, Gas, and Oil Analysis. Laboratory instruction in the technical analysis of fuels, illuminating and fuel gases, products of combustion, etc. *First semester; two periods a week.* Assistant Professor DICKERMAN and Mr. KOWALKE.
3. Technology of Fuels. Lectures relating to the production, properties, and uses of solid, liquid and gaseous fuels, and a consideration of refractory materials and furnace construction. *Second semester; two times a week.* Assistant Professor DICKERMAN.
4. Chemical Manufacture. Instruction and laboratory practice in the preparation of chemical products on a scale sufficiently large to involve the use of filtering, evaporating, centrifugal, and other chemical machinery, and to obtain data upon which the design of a plant may be based. The design of a plant for the production of one or more materials, with an analysis of costs is required of each student. *Second semester; five periods a week.* Assistant Professor DICKERSON and Mr. KOWALKE.
5. Industrial Chemistry. Class-room work relating to the manufacture of the more important chemical products such as acids, alkalis, cements, fertilizers, glass, paper, etc.; the equipment of plants, and problems connected with the same; chemical resistence of materials. *First semester; three periods a week.* Assistant Professor DICKERMAN.
6. Thermal Efficiencies. A study of heat utilization and losses in chemical and metallurgical reactions involving the use of high temperatures. The purpose of this course is to give instruction in the various types of furnaces, their design

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and operation. *First semester; two times a week.* Professor BURGESS.

7. Illumination and Photometry. A laboratory course in the measurement of the illuminating power of gas and oils. *Second semester; once a week.* Mr. WICKENDEN.
8. Manufacture and Distribution of Gas. A class and laboratory study of the development of the gas industry, the chemistry of gas manufacture, and the apparatus, and problems involved in the manufacture, distribution and consumption of gas for fuel, power, and illuminating purposes. *Throughout the year.* (Given in 1908.)

ENGINEERING CONTRACTS AND SPECIFICATIONS

PROFESSOR PENCE.

1. The law of contracts as applied to engineering work, together with the typical forms of specifications governing both the commercial and technical features of engineering construction, and of all the related documents pertaining to engineering contracts. *Second semester; twice a week for nine weeks.*

SHOP WORK

SUPERINTENDENT STEEN, MR. DABNEY, MR. KATELEY, MR. LOTTES, MR. PAYTON, MR. SLADKY, AND MR. WOOD.

1. Bench Work in Wood. *Both semesters; one unit-hour credit.*
2. Wood, Lathe, Pattern, and Foundry Work. *Both semesters; one unit-hour credit.*
3. Bench Work in Iron. Instruction in the use of the chisel, file and scraper. *First semester; one-half unit-hour credit.*
4. Pipe Fitting, Maintenance of Belting, Babbiting, and Soldering. *First semester; one unit-hour credit.*
5. Lathe Work in Metals. *First semester; two unit-hours credit* in Mechanical Engineering course; *one unit-hour credit* in Electrical Engineering course.
6. Planing and Milling. *Both semesters; one unit-hour credit.*
7. Forge Work. *First semester; one and one-half unit-hours credit* in Mechanical Engineering course; *one unit-hour credit* in Electrical Engineering course.
8. Chipping and Filing, Maintenance of Belting, and Soldering. *First semester; one unit-hour credit.*

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9. Tool Making, Grinding, Jigs and Fixtures. *First semester; two unit-hours credit.*
10. Turret Lathe Operation. Forms of tools and methods of operation for production of duplicate parts. *Second semester; one unit-hour credit.*
11. Machine Construction. *Both semesters; four unit-hours credit* in Mechanical Engineering course; *two unit-hours credit* in Electrical Engineering course.
12. Advanced Foundry Practice. Loam, Sweep, and Dry Sand Molding; Management of Cupola. *Second semester; one unit-hour credit.*
13. Elective for Civil Engineering Students. Wood work; trusses, trestle work, and concrete molds. Forge practice; forging, welding, and tool dressing. Machine shop; lathe work drilling, use of hand tools, punching, riveting, and instrument repairs. *Second semester; three unit-hours credit.*
14. Elective for Chemical Engineering students. (Wood work; scaffolding, machine framing, concrete molds.) Forge practice; forging, welding, brazing, soldering, and tool dressing. Machine shop; lathe work, drilling, use of hand tools, pipe fitting, maintenance of belting and shafting, sheet metal construction, lead and copper working. *Second semester; three unit-hours credit.*

Required for Mechanical Engineering Course, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12; total, 16 unit-hours.

Required for Electrical Engineering Course, Nos. 1, 2, 5, 6, 7, 8, 11; total, eight unit-hours.

Note:—Four unit-hours in each of the above lists of required courses must be taken during vacation periods. Opportunity is offered to do this work in the University shops, but credit for same may be obtained for not less than four weeks' work in industrial establishments when a satisfactory equivalent can be obtained.

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THE COLLEGE OF LAW

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
HARRY S. RICHARDS, LL. D., Dean, and Professor of Law.

ROBERT M. BASHFORD, A. M., LL. B., Professor of Law*
JAIRUS H. CARPENTER, LL. D., Jackson Professor of Law. (Emeritus.)
WALTER W. COOK, A. M., LL. M., Professor of Law.
EUGENE A. GILMORE, A. B., LL. B., Professor of Law.
BURR W. JONES, A. M., LL. B., Professor of Law.
JOHN M. OLIN, A. M., LL. B., Professor of Law.
HOWARD L. SMITH, A. B., LL. B., Professor of Law.
EMLIN MCCLAIN, LL. D., Lecturer, Summer Session, 1907.

History

Plans for the organization of the College of Law were formulated in 1857, but owing to lack of funds the actual organization was not effected until 1868. The instructional staff was composed of members of the Dane County bar and the judges of the Supreme Court.

The course of study covered but one year, and no requirements as to admission were exacted. In 1874 candidates for admission were required to pass examinations in the ordinary English branches. In 1881 the course of study was extended to two years, and candidates were required to have a fair English education. In 1894 the course was extended to three years. In 1896 the requirements for admission were made the same as in the College of Letters and Science. In 1905 candidates for degrees were required to present additional credits equivalent to the freshman year of the College of Letters and Science. In 1907 the present requirements of credit equivalent to the freshman and sophomore

*Resigned, January, 1908.

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years of the College of Letters and Science became effective. In April, 1907, the regular summer session of the College of Law was established, and courses were offered during the summer of 1907. At the time of its organization the College occupied rooms in the capitol building. It now occupies a building especially erected for it in 1893.

Objects of the Course

The College of Law offers a course of study covering a period of three years. It is designed to teach the fundamental principles of the English and American law in a thorough manner, and to fit the student for the active practice of the profession.

Admission

Students applying to the College of Law may be admitted as are students in other departments by either of two methods:—

First, on certificates from accredited schools or colleges.

Second, on examination at the University.

Applicants for admission to the College of Law as candidates for a degree must satisfy the general requirements of the University (see Index under Admission), and in addition, must present credits equivalent to the freshman and sophomore years in the College of Letters and Science. The above requirements may be satisfied by work done in any reputable college or university. Graduates of the regular course in the several State Normal schools of Wisconsin will be admitted as candidates for a degree.

Applicants for admission who can satisfy the general entrance requirements will be admitted as special students and entitled to all the privileges of the school in the way of instruction. An opportunity is thus afforded to prepare for the bar examinations in this and other states. In exceptional cases, special students may become candidates for the degree. (See Requirements for Graduation.)

The examinations are conducted at the same time and by the same members of the Faculty as the examination of candidates for admission to the College of Letters and Science.

In addition to the other entrance requirements, all candidates for admission to the College of Law, whether graduates of accredited high schools or not, are required to take the regular entrance examination in English, required for admission to the College of Letters and Science (see Index under Admission), except,

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(a) Students of the University who have already passed such examination.

(b) Graduates of other approved colleges and universities. But the Faculty may require any student to take additional work in English, if, in their judgment, it is necessary.

Those intending to apply for examination for admission to the first year class, or for advanced standing, should notify the Registrar of the University before the beginning of the year, and apply for directions, as examinations cannot be taken later.

Examinations for admission to the first year class will be held on June 11-12, and September 29-30, 1908, beginning at 9 o'clock.

Advanced Standing

Candidates for advanced standing who can comply with the general entrance requirements of the college as above set out will be given equivalent credit for satisfactory work done in other law schools in good standing having a three years course, upon presenting properly authenticated certificates of such work. The right is reserved to require examinations in all cases where the credits presented are not regarded as equivalent.

Students who have graduated from the College of Letters and Science, and who while students in that college have elected and successfully completed ten hours a week of law study, will be admitted to the second year. To meet the above requirement the student must elect seven hours of work in the subjects of the first year of the College of Law and three hours in law courses offered in the College of Letters and Science. The courses from which elections can be made in both colleges are to be designated by the faculty of the College of Law.

All persons who intend to apply for advanced standing under the above rules should forward or present their credentials to the Dean of the College at least one week before the opening of the particular session which the student desires to attend.

The courses designated in 1907-08 in the College of Letters and Science were Political Science 2, 9, 10, 11, 13, 18, 26.

Graduation

The degree of Bachelor of Laws will be conferred upon all candidates of good character and of at least twenty-one years of age, who have complied with the following conditions:

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(1) Credit for at least sixty-two unit-hours (a unit-hour is the equivalent of one hour a week for a semester).

(2) Residence of at least three years in a law school of good standing, having a three-year course, one year of which must have been in this College.

(3) Preparation and presentation of a satisfactory thesis of not less than 3,000 words on some legal subject selected with the approval of the faculty. The subject shall be chosen and the work begun thereon, under the supervision of the instructor in charge, not later than December 1st, and completed by April 15th, preceding the Commencement at which the candidate will apply for his degree. Two unit-hours credit is given for thesis.

(4) Students completing the course with distinguished ability and presenting a thesis of unusual merit will be recommended for the degree with honor.

(5) Unclassified students who have completed seventy-two unit-hours and who have been in residence for three years may, provided they have displayed unusual ability in their work, by special action of the Faculty, be recommended for a degree.

Admission to the Bar

The statutes of the state provide that any resident graduate of the Law Department of the University of Wisconsin shall be admitted to the bar of any court upon the presentation of his diploma, and may be admitted to the Supreme Court when not in session by an order signed by one of the justices thereof and filed with the clerk. (R. S. Wis., sec. 2586.)

Under this statute and a rule of the federal court, it is customary for the graduating class, on motion of a member of the Faculty, to be admitted to the Supreme Court of the State, and to the district and circuit courts of the United States, immediately upon graduation. This entitles them to admission to the bar of any court of record in Wisconsin and all federal courts.

COURSES OF INSTRUCTION

The courses of instruction are arranged to present as far as possible, the fundamental topics of the law during the first year, and the specialized subjects during the second and third years.

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FIRST YEAR

COMMON LAW PLEADING. Ames' Cases on Common Law Pleading (first edition). *Two hours a week; second semester.* Professor COOK.

CONTRACTS. Keener's *Cases on Contracts. Three hours a week; both semesters.* Professor RICHARDS.

CRIMINAL LAW AND PROCEDURE. Chaplin's Cases. *Two hours a week; both semesters.* Professor SMITH.

HISTORY OF ENGLISH AND AMERICAN LAW. Cases and assigned readings. *Two hours a week; first semester.* Professor COOK.

Introductory to the study of the history of the common law, with particular reference to pleading.

PERSONAL PROPERTY. Gray's Cases. *One hour a week; first semester.* (Omitted in 1907-08.) Professor ————

LAW OF PERSONS. Paige's Cases. *One hour a week; both semesters.* Professor JONES.

PROPERTY I. Gray's Cases on Property, Vols. I, II. (2nd ed.) *Two hours a week; both semesters.* Professor OLIN.

TORTS. Ames' and Smith's Cases on Torts. *Two hours a week; both semesters.* Professor GILMORE.

SECOND YEAR

ADMINISTRATIVE LAW I. Goodnow's Cases on Administrative Law. *Two hours a week; first semester.* (Omitted in 1908-09.) Professor COOK.

ADMINISTRATIVE LAW II. Selected cases and Smith's Cases on Municipal Corporations. *Two hours a week; second semester.* (Omitted in 1908-09.) Professor COOK.

ADMINISTRATIVE LAW III. Selected cases. *Two hours a week; first semester.* (Omitted in 1907-08.) Professor COOK.

ADMINISTRATIVE LAW IV. Goodnow's Cases on Taxation. *Two hours a week; second semester.* (Omitted in 1907-08.) Professor COOK.

AGENCY. Wambaugh's Cases on Agency. *Three hours a week; first semester.* Professor GILMORE.

BANKRUPTCY. Williston's Cases on Bankruptcy. *Two hours a week; second semester.* (Omitted in 1907-08.) Professor COOK.

BILLS OF EXCHANGE AND PROMISSORY NOTES. Huffcut's Cases on Negotiable Instruments. *Three hours a week; second semester.* Professor SMITH.

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CODE PLEADING. Wisconsin Statutes and Decisions. *Two hours a week; second semester.* Professor BASHFORD.

DAMAGES. Beale's Cases on Damages. *Two hours a week; second semester.* (Omitted in 1907-08.) Professor RICHARDS.

EQUITY I. Keener's Cases on Equity. Vols. I, II. *Three hours a week; first semester.* Professor SMITH.

EQUITY II. Keener's Cases on Equity. Vols. II, III. *Three hours a week; second semester.* Professor SMITH.

EQUITY PLEADING. Fletcher's Equity Pleading and Practice. *Two hours a week; first semester.* Professor ————

EVIDENCE I. Jones on Evidence, and selected cases. *One hour a week; both semesters.* Professor JONES.

INSURANCE. Wambaugh's Cases on Insurance. *Two hours a week; second semester.* (Omitted in 1908-09.) Professor RICHARDS.

PROPERTY II. Selected cases. *One hour; both semesters.* (Omitted in 1907-08.) Professor OLIN.

PUBLIC SERVICE COMPANIES. McClain's Cases on Carriers, and selected cases. *Three hours a week; second semester.* Professor GILMORE.

QUASI-CONTRACTS. Keener's Cases on Quasi-Contracts. *Three hours a week; second semester.* Professor COOK.

SALES. Williston's Cases on Sales. *Three hours a week; first semester.* Professor SMITH.

TRUSTS. Ames' Cases on Trusts. (Second edition.) *Three hours a week; first semester.* Professor COOK.

THIRD YEAR

ADMIRALTY. Ames' Cases on Admiralty. *Two hours a week; first semester.* (Omitted 1907-08.) Professor ————

CODE PRACTICE. Wisconsin Statutes and Decisions. *Two hours a week; second semester.* Professor ————

COMPARATIVE CONSTITUTIONAL AND ADMINISTRATIVE LAW I. Selected cases and assigned readings. *Two hours a week; first semester.* (Omitted 1907-08.) Professor COOK.

COMPARATIVE CONSTITUTIONAL AND ADMINISTRATIVE LAW II. Selected cases and assigned readings. *Two hours a week; second semester.* (Omitted 1907-08.) Professor COOK.

CONFLICT OF LAWS. Selected Cases. *Two hours a week; second semester.* (Omitted 1907-08.) Professor ————

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CONSTITUTIONAL LAW. McClain's Cases on Constitutional Law, and selected cases. *Two hours a week; both semesters.* Professor GILMORE.

CORPORATIONS. Smith's Cases on Corporations. *Two hours a week; both semesters.* Professor RICHARDS.

EVIDENCE II. Jones on Evidence. *One hour a week; both semesters.* Professor JONES.

MORTGAGES. Kirchwey's Cases on Mortgages. *Two hours a week; second semester.* Professor COOK.

PARTNERSHIP. Burdick's Cases on Partnership. *Two hours a week; second semester.* Professor GILMORE.

PROBATE LAW. Statutes and selected cases. *One hour a week; second semester.* (Omitted in 1908-09.) Professor OLIN.

SURETYSHIP. Ames' Cases on Suretyship. *Two hours a week; first semester.* Professor COOK.

WILLS. Cassoday on Wills, and selected cases. *One hour a week; first semester.* (Omitted in 1908-09.) Professor OLIN.

WISCONSIN CORPORATIONS. Statutes and selected cases. *One hour a week; first semester.* (Omitted in 1907-08.) Professor RICHARDS.

Required and Elective Courses

Candidates for the degree are required to take all the subjects of the first year, twelve hours of work in the second year, and twelve hours in the third year. The work of the second and third years is elective. Second year students may elect not less than twelve nor more than fourteen hours in courses offered in the second year. Second year students who are graduates of the College of Letters and Science, and who have not completed all the courses of the first year, will be required to include such omitted courses in their list of electives. Third year students may elect not less than twelve nor more than fifteen hours in courses offered in the third year and in courses not already taken by them when second year students. No student is permitted to count more than twelve hours of work in any one semester towards the total hours required for the degree. Elections in all cases are subject to the approval of the Dean.

Procedure and Practice Courses

Courses in Procedure and Practice extend throughout the entire three years and comprise Common Law Pleading, four hours, first year; and Code Pleading and Practice, two hours a week,

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during the second and third years, supplemented by four hours a week in the Practice Court. The purpose of the courses is to instruct the student in the principles of pleading and practice at common law and under the Codes, by duplicating as far as possible the steps taken by an active practitioner in the preparation and trial of cases at law and in equity throughout the entire field of litigation. The student is required to prepare pleadings in assigned cases, and as counsel in the practice court carry through the various steps in a cause from its inception to the final judgment. Instruction will also be given in the drawing of all forms of legal papers. Unusual facilities are thus provided to prepare the student for the active practice of the profession.

Elective Studies

Students of the College of Law will be permitted to pursue studies in other departments of the University, subject to the following regulations:

Students of the first year class of the College of Law may elect studies in the College of Letters and Science and substitute them for studies in the first year of the law course, to an amount not exceeding three hours a week for the year. The studies to be elected are to be designated by the College of Law.

Students in the College of Letters and Science will be permitted to elect, as a part of their undergraduate course, studies in the College of Law for which see Index, under Election.

Resources of the College of Law

The College of Law is maintained from appropriations made for the purpose by the Regents, and from matriculation fees.

By the will of the late Judge Mortimer M. Jackson, funds to the amount of $20,000 were bequeathed to the University to found and maintain a professorship of law.

Law Building

This building was constructed at a cost of $86,000. It is amply provided with lecture and library rooms, and is equipped with the most approved systems of lighting, heating, and ventilation.

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Library

The library of the College of Law contains 16,000 bound volumes, comprising the official reports of the various states and territories and of the United States; a complete set of English reports; the reporter system; the various series of selected cases, as American Decisions, American Reports, American State Reports, Lawyers Reports Annotated; duplicates of the more important reports; complete sets of the leading law periodicals; a large collection of text books, statutes, digests, etc. Large additions to the library have recently been made by means of a special appropriation from the Board of Regents.

Students are allowed free access to the books. The library is open each week day from 8 A. M. to 10 P. M.

For information concerning the other libraries accessible to students, see Index under Library.

Advantage of Location

Unusual facilities for observing the practice of the various courts are offered the students of the College of Law, from the fact that the Supreme court of the state is in session during most of the academic year, and the students have opportunity to listen to arguments by some of the ablest lawyers of the country.

Two terms of the United States District and Circuit courts are held here annually, and important cases, both in law and equity, are tried, illustrating the procedure in the federal courts.

The Circuit court of Dane county holds three terms annually, giving the students opportunity to observe the details of the practice under the code system.

The Municipal court of Dane county sits daily for the trial of criminal causes.

The legislature of the state holds biennial sessions.

The University

The University of Wisconsin has a corps of instructors selected from the best scholars in their respective specialities. On obtaining the proper certificate from the dean, students of the College of Law may pursue studies for which they are prepared in other departments of the University, without additional fees, in so far as such studies do not interfere with their work in the College of Law.

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Societies

The Forum-Columbia is an incorporated literary society composed entirely of law students. Weekly meetings for debates and other literary exercises are held.

Fees and Expenses

All fees are payable in advance at the office of the Secretary of the Regents. (See Index under Tuition and Fees.) Admission to membership in the classes is not permitted until the fees are paid. No deductions are made for absences, nor for failure to begin at the opening of the year, nor is extension of time allowed for payment of fees. Fees must in all cases be paid in advance.

Receipts showing the payment of tuition must be filed with the dean within ten days after entry.

It is most desirable that each student should provide himself with his own text-books and books of selected cases which are designated in the program of instruction. These books may be obtained from the University Co-operative Society at a considerable discount from the quoted prices. The books required for the first year can be obtained for about $35 and for the second and third years for about $65.

The expenses of living are moderate. (See Index under Expenses.)

Students desiring information in regard to boarding places, or general information as to expenses, should address their inquiries to the Secretary of the Regents.

A careful perusal of this general statement, it is believed, will supply all needed information; but should further inquiries as to admission, examination, etc., be necessary, they should be addressed to the Dean of the College of Law, Madison, Wis.

SUMMER SESSION

The summer session established in 1907 is a regular session of the college. The courses offered are not review courses or abbreviations of the subjects presented during the regular session. The lectures are given by regular members of the faculty assisted by experienced teachers from other law schools. Full credit toward the degree in law is given for all work successfully completed. An opportunity is thus afforded to those who for any reason are unable to attend the regular session to obtain thorough

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and systematic legal instruction. By taking advantage of the summer sessions regular students of the college can materially shorten the calendar period of residence required for the degree.

Time of Opening

The session for 1907 began June 24th and continued until August 30th. The session for 1908 begins June 22nd and continues until August 29th.

Courses of Instruction

The course for the summer is arranged to present a full course (twelve lectures a week) for students who have not previously studied law, and a full course for students who have had at least one year in law.

During the session of 1907 the following courses were offered:

FIRST YEAR

CONTRACTS. Keener's Cases on Contracts, Vol. I. *Eight hours. Five weeks.* Professor COOK.

CONTRACTS. Keener's Cases on Contracts, Vol. II. *Eight hours. Five weeks.* Professor RICHARDS.

CRIMINAL LAW. Chaplin's Cases. *Four hours. Ten weeks.* Professor SMITH.

SECOND YEAR

EQUITY I. Keener's Cases on Equity, Vol. I. *Four hours. Ten weeks.* Professor SMITH.

PUBLIC SERVICE COMPANIES. McClain's Cases on Carriers. *Four hours. Ten weeks.* Professor MCCLAIN.

SALES. Williston's Cases on Sales. *Four hours. Ten weeks.* Professor MCCLAIN.

Session 1908

During the session of 1908 the following courses will be offered:

FIRST YEAR

COMMON LAW PLEADING. Selected Cases and Readings. *Eight hours. Five weeks.* Professor COOK.

PROPERTY I (a). Gray's Cases on Property, Vol. I (2nd ed.) *Eight hours. Five weeks.* Professor HAZELTINE.

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TORTS. Ames' and Smith's Cases, Vol. I. *Four hours. Ten weeks.* Professor GILMORE.

SECOND AND THIRD YEARS

BILLS OF EXCHANGE AND PROMISSORY NOTES. Huffcut's Cases on Negotiable Instruments. *Eight hours. Five weeks.* Professor SMITH.

CONSTITUTIONAL LAW. McClain's Cases on Constitutional Law. *Four hours. Ten weeks.* Professor GILMORE.

QUASI-CONTRACTS. Scott's Cases on Quasi-Contracts. *Eight hours. Five weeks.* Professor COOK.

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THE COLLEGE OF AGRICULTURE

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
H. L. RUSSELL, Ph. D., Dean.

W. A. HENRY, D. Agr., D. Sc., Emeritus Professor of Agriculture.
A. S. ALEXANDER, F. H. A. S., M. D. C., Professor of Veterinary Science.
S. M. BABCOCK, Ph. D., Professor of Agricultural Chemistry.
E. H. FARRINGTON, M. S., Professor of Dairy Husbandry.
E. B. HART, B. S., Professor of Agricultural Chemistry.
E. G. HASTINGS, M. S., Assistant Professor of Bacteriology.
G. C. HUMPHREY, B. S., Professor of Animal Husbandry.
GEORGE MCKERROW, Superintendent of Farmers' Institutes.
J. G. MOORE, M. S., Assistant Professor of Horticulture.
R. A. MOORE, Professor of Agronomy.
C. A. OCOCK, B. S., Assistant Professor of Agricultural Engineering.
D. H. OTIS, M. S., Assistant to the Dean; Associate Professor of Animal Nutrition.
MAZYCK P. RAVENEL, M. D., Professor of Bacteriology.
J. L. SAMMIS, Ph. D., Assistant Professor of Dairy Husbandry.
E. P. SANDSTEN, Ph. D., Professor of Horticulture and Economic Entomology.
C. W. STODDART, A. M., Assistant Professor of Soils.
H. C. TAYLOR, Ph. D., Assistant Professor of Agricultural Economics.
A. R. WHITSON, B. S., Professor of Soils.
F. W. WOLL, Ph. D., Professor of Agricultural Chemistry.

G. H. BENKENDORF, Instructor in Dairy Husbandry.
J. G. FULLER, B. S., Instructor in Animal Husbandry.
CONRAD HOFFMANN, B. S., Instructor in Agricultural Bacteriology.
LOUISE M. JAHNS, B. S., Assistant in Soils.

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E. R. JONES, B. S., Instructor in Soils and Drainage.
F. KLEINHEINZ, Instructor in Animal Husbandry.
E. V. MCCOLLUM, Ph. D., Instructor in Agricultural Chemistry.
C. J. MCCOMB, Assistant in Animal Husbandry.
M. MICHELS, Assistant in Dairy Husbandry.
J. G. MILWARD, B. S., Instructor in Horticulture.
G. A. OLSON, B. S., Instructor in Agricultural Chemistry.
A. J. ROGERS, B. S., Assistant in Horticulture.
K. W. SMITH, Instructor in Agricultural Bacteriology.
A. L. STONE, Instructor in Agronomy.
W. E. TOTTINGHAM, B. S., Instructor in Agricultural Chemistry.
IDA HERFURTH, Executive Clerk.
IVA A. WELSH, Librarian.

Additional Instructors in Short Courses

J. ACCOLA, Assistant in Animal Husbandry.
L. S. BERRY, Assistant in Farm Dairying.
A. C. HABERSTICH, Assistant in Dairy Machinery.
G. MARTY, Assistant in Foreign Cheese Making.
L. S. PIERCE, Assistant in Creamery.
H. L. POST, Assistant in Farm Dairying.
F. J. RUBENSAAL, Assistant in Pasteurizing.
H. SANDELL, Assistant in Soils.
A. J. SCHMELZER, Assistant in Cheese Making.

GENERAL INFORMATION

Building and Equipment

The College of Agriculture, while distinct from the other grand divisions of the University in its buildings, its corps of instructors and investigators, and its equipment, is nevertheless intimately interwoven with the whole institution, gaining immensely by such association and union. Agricultural students have all the advantages incident to a great university, such as instruction and counsel from the corps of professors in other colleges, the general libraries, laboratories, societies and associations. All the facilities of the College, including laboratories, green houses, cold storage, barns, and other equipment, are available, under suitable restrictions, to advanced students, conducting research work in any of the departments.

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Six buildings located at the west end of Observatory Hill are devoted to agricultural research and instruction. Agricultural Hall is a four-story structure, 200 feet in length by 64 feet in width, built of Bedford limestone and buff pressed brick, with a red Spanish tile roof. Here are located the executive offices of the College and Experiment Station, the offices of the Farmers' Institute, and the offices and laboratories of the departments of Agricultural Chemistry, Animal Husbandry and Agricultural Bacteriology, with additional rooms for departments yet to be established. In the rear of the main structure is an octagonal wing, 66 feet in diameter, two stories in height. The first story of the octagon is occupied by the agricultural library, with its large reading room. In the upper story is located an auditorium, with gallery, having a total seating capacity of 750.

Hiram Smith Hall, devoted to dairy instruction and research, is a brick and stone structure, having a frontage of 103 feet by 48 feet in depth, two and three stories in height. Here are found the offices of the department, lecture rooms, laboratories, rooms for cream separation and cheese making; also rooms for churning and butter working, pasteurization, refrigeration, etc. An addition at the rear furnishes rooms for the manufacture of foreign cheese, cheese pressing, cheese curing, etc. Both buildings are supplied with refrigeration, furnished by an ammonia plant. The Dairy Department receives 4,000,000 pounds of milk annually from more than a hundred different farms; from this are manufactured and sold in Madison, Milwaukee, Chicago, and elsewhere, pasteurized milk, pasteurized cream, print and package butter, and several varieties of cheese.

The joint Horticulture-Physics building is a three-story brick and limestone structure, with a frontage of 76 feet by 60 feet in depth. The east half of the building, devoted to horticulture, is provided in the rear with three green-houses, each 22 by 76 feet in area, back of which is a potting house and general laboratory, 22 by 66 feet, one story in height, over an ample root cellar. The grounds of the Horticultural Department embrace about twelve acres, mostly occupied by fruit trees, shrubs, and perennial plants. The seedling experimental apple and plum plantations are especially extensive.

The west half of the building is devoted to instruction and research in soils. At the rear is a green-house, 44 by 76 feet in area. The Soils Department controls twelve acres of the University

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farm, which area is devoted to irrigation, soil, drainage, and fertilizer experiments. The Experiment Station has under control, in different portions of the state, seven experimental fields used in soil investigation, two of which are on the heavy red clays of the Superior region, one at Superior and one at Ashland; two on very sandy soil, one at Iron River on the glacial sands of that region and the other at Sparta on residual sand; and three on peat soils, one at Marinette, one at Phillips, and one at Mather. These fields, varying in extent from three to twenty acres, are used for studies in fertilizer requirements, adaptation to proper crops, and the special methods of management of each type.

The Agronomy Building is a three story, fire-proof, reinforced-concrete brick building with tile roof and Bedford limestone trimming. The building has a frontage of ninety-eight feet and a depth of forty-eight feet, and was erected the past year at a cost of $30,000. The first floor has storage rooms for grains, forage plants, and special machinery; also a grain curing and a shipping room. The space on the second floor will include a general office, two private offices, a grain laboratory, sample grain room, museum, and lecture room. The upper story is one large grain-judging room for the accommodation of several hundred students.

The Agricultural Engineering Building is a reinforced steel concrete structure, having a frontage of 150 feet, a depth of 50 feet, and three stories in height. The floors, posts, and foundation walls are of the most modern type of concrete construction. The exterior walls are of purple pressed brick. The interior walls are of white sandlime bricks; all partitions are constructed of hollow tile, plastered over, thus making the building practically fire-proof. It is equipped with suitable machinery and appliances for both research and instruction. Here are found the offices of the department, lecture rooms, drafting rooms, blue-print room, and laboratories, the latter being devoted to farm machinery and practical cement work.

The heating plant for the College of Agriculture, occupying the basement of a brick structure, 35 by 50 feet in area, is provided with five steam boilers aggregating 370 horse power.

About sixty rods west of the group of agricultural buildings above described are located the farm buildings proper. The principal ones of these are four large barns for the separate accommodation of horses, cattle, sheep, and swine. Between the

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two wings of the barn, housing the dairy cows and young stock, is a sky-lighted, steam-heated stock-judging room, 40 by 70 feet in area. A second sky-lighted, stock-judging building, one story in height, 36 by 74 feet, is provided with electric light and steam heat, and can be divided into two rooms by a folding partition.

The Agricultural College domain comprises two farms, one of which forms a part of the University campus, and embraces about 150 acres of tillable land. Two miles distant is another farm of 220 acres, to which has been added by lease 70 acres. Both tracts are devoted to instruction and research, and experiments with farm crops, fertilizers, tillage, drainage, etc., are always in progress. No attempt is made to operate a "model farm," but rather to conduct all operations in such manner as to add to the sum of human knowledge and advance the agriculture of the state.

Live Stock

Choice specimens of the various classes and breeds of farm animals, valued at nearly $25,000 are maintained in the University herds, stud and flock. Dairy cattle of the Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey breeds for which Wisconsin is preeminently noted are given special attention. Representative beef animals of the Aberdeen Angus, Hereford, Red Poll, and Shorthorn breeds are maintained. The swine herd is composed of Berkshires, Chester Whites, Duroc Jerseys, Large Yorkshires, Poland Chinas, and Tamworths. Cheviot, Dorset, Hampshire, Shropshire, and Southdown breeds of sheep are represented in the University flock. The horses are principally of the draft type and include several brood mares of the Clydesdale and Percheron breeds. All animals are used for instructional purposes and in many instances for investigational work directed by the Experiment Station.

Library

The Agricultural College Library embraces over 9,200 bound volumes and many pamphlets, all distinctly agricultural in character. It is especially strong in its files of scientific agricultural journals, both American and foreign, and herd, stud, and flock books of pure-bred animals. A trained librarian is in attendance to assist the student. This library, in combination with the general University library and the State Historical library, gives unusual service to the user of books.

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Societies

Long Course, Short Course, and Dairy students maintain three literary societies which meet weekly. These organizations are for drill in parliamentary practice, training in declamation, debate, and essay writing, as well as for the discussion of scientific and practical questions along agricultural lines.

Students of the College of Agriculture, former and present, engaged in farming in Wisconsin, maintain an Experiment Association, with a paid membership of about 1,000, for the purpose of cooperating with the Experiment Station in advancing the agriculture of the commonwealth. Practical experiments, planned by Station officials and a committee of the Association, are carried out on the farms of the members. Especial attention is given to testing promising new varieties of farm grains, and plants secured through the Experiment Station and the United States Department of Agriculture, and to multiplying and disseminating the desirable varieties. By means of this organization, the members of which are scattered all over the State, the College is in close touch with the great body of Wisconsin farmers, numbering 175,000 in all. The State appropriates $1,000 annually to the work, and prints 5,000 copies each year of the annual report of the Association.

Fees and Expenses

For tuition and fees, see Index.

The expenses of resident students in the graduate and long courses are practically the same as for those pursuing other University courses.

The expenses of resident Short Course and Dairy students will vary from $75 to $90 for the term for room, board, washing, and necessary books.

Plan of Agricultural Education

The University system of agricultural education has three aims:—

First, to develop agricultural science through investigation and experiment, and to disseminate the same through bulletins and reports.

Second, to give instruction in agriculture at the University.

Third, to disseminate agricultural knowledge among the farmers of the State by means of institutes and popular publications.

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Courses of Instruction

Systematic courses in agriculture have been arranged to meet the wants of students having different purposes in view.

THE GRADUATE COURSE offers to advanced students opportunities for professional training and original investigation, made possible through an active Experiment Station, associated with numerous scientific laboratories. The special lines of study will be left largely to the selection of the student, subject to the approval of the agricultural faculty. It will be practical for such students to participate in experiments in progress, and, after suitable experience, to conduct independent investigations. When contributions of knowledge of permanent value are made they will be published through the bulletins of the Experiment Station under the name of the contributor.

THE LONG COURSE offers scientific training in agricultural chemistry, soils, horticulture, animal husbandry, dairying, agricultural bacteriology, agronomy, and agricultural engineering. Besides the strictly professional branches, it embraces general training in chemistry, physics, biology, bacteriology, and other branches which have an application in agriculture. The field is so broad, however, that it is impossible for the student in four years to pursue all the courses offered in addition to acquiring the necessary fundamental studies, and hence a large liberty of selection is allowed.

THE MIDDLE COURSE. This course of two full years' instruction embraces essentially the work of the first two years of the Long Course, with the exception of foreign language and mathematics. The considerable amount of work in the basal sciences is designed to lay a foundation for the distinctively agricultural work.

THE SHORT COURSE for two years of fourteen weeks each is provided for those who can devote only a limited time to study, and who wish to return at once to the active operations of the farm, and therefore desire the greatest amount of directly useful knowledge that can be acquired in the brief time allowed.

THE DAIRY COURSE of twelve weeks is designed for those who intend to operate creameries and cheese factories.

THE FARMERS' COURSE, covering the brief period of two weeks in winter, is designed for busy farmers, and follows only lines of intensely practical instruction.

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Terms of Admission

GRADUATE COURSES IN AGRICULTURE.—Graduates of this University and of other colleges and universities in good standing are admitted to this course without examination.

LONG COURSE IN AGRICULTURE.—The requirements for admission to this course are given under Admission to University. (See Index.)

ADULT SPECIAL STUDENTS IN AGRICULTURE.—For terms of admission for adult special students, see Index under Admission.

THE MIDDLE COURSE IN AGRICULTURE. Requirements for admission are same as for Long Course. (See Admission to University in Index.)

SHORT COURSE IN AGRICULTURE.—Students in this course must be at least sixteen years of age and have a good common school education. No entrance examinations are required, but those who come poorly prepared cannot expect to receive the full benefits of the course.

DAIRY COURSES.—The requirements for admission to the Winter Dairy Course are the same as for the Short Course excepting that the candidates must have had not less than six months experience in a creamery or cheese factory before entering the course. For admission to the Summer Course no previous experience is required.

FARMERS' COURSE.—No examinations are required for admission to this course, but the candidate must be at least twenty-five years of age.

For fees charged in the various departments, see Index under Fees.

Degrees

The degree of Bachelor of Science in Agriculture is conferred upon students who successfully complete the long course in agriculture. The degree of Master of Science is conferred upon agricultural graduates who complete one year of advanced study at the University and present an acceptable thesis on a topic approved by the College Faculty.

Certificates

Students completing in a satisfactory manner the Middle, Short, or Dairy course, will be granted appropriate certificates.

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OUTLINE OF LONG COURSE IN AGRICULTURE

Note.—In calculating the hours per week for the various studies, two hours of laboratory, field, or barn practice count as one hour of class room work, which is the unit in this outline. Required subjects outside the College of Agriculture will be found cataloged under the College of Letters and Science. (Marked L. & S.)

Freshman Year

FIRST SEMESTER	Hours per Week
English 1 (L. & S.)	3
German 2S, (L. & S.)	4
Chemistry 1 (L. & S.)	5
Agronomy 1	2½
Animal Husbandry 1	2½
Military Drill	2
Gymnastics	2

SECOND SEMESTER	
English 1 (L. & S.)	3
German 2S (L. &. S.)	4
Chemistry 1 (L. & S.)	5
Agricultural Engineering 1	2½
Dairy Husbandry 1	2½
Military Drill	2
Gymnastics	2

Sophomore Year

FIRST SEMESTER	
Bacteriology 1 (L. & S.)	3
Chemistry 11a (L. & S.)	4
Biology 1 (L. & S.)	5
Horticulture 1	2½
Animal Husbandry 2	2½
Military Drill	2
Gymnastics	2

SECOND SEMESTER	
Agricultural Bacteriology 20	3
Agricultural Chemistry 1 and 2	5
Soils 1	5
Mathematics 201 (L. & S.)	3
Military Drill	2
Gymnastics	2

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Junior Year

FIRST SEMESTER

	Hours per Week
Physics 1 (L. & S.)	5
Economics 1 (L. & S.)	3
Botany Systematic 20 (L. & S.)	2
Electives (3 required in the College of Agriculture)	6

SECOND SEMESTER

Physics 1 (L. & S.)	5
Botany 6 (L. & S.)	4
Agricultural Economics 26	2
Electives (3 required in the College of Agriculture)	7

Senior Year

FIRST SEMESTER

Major, including Thesis	5
Minor, assigned	5
Electives (3 required in the College of Agriculture)	6

SECOND SEMESTER

Major, including Thesis	5
Minor, assigned	5
Electives (3 required in the College of Agriculture)	6

The thesis must represent some phase of the student's work in his major study, the credits for the thesis being four unit-hours. The professor in whose department the major is taken, will select a minor. The assigned minor may be taken outside the College of Agriculture. The total requirements for graduation are 133 unit-hours, in addition to military drill and gymnastics. Before graduation, the student must also have had at least six months' practical farm experience. Sixteen to eighteen unit-hours exclusive of drill and gymnastics may be elected each semester, with the privilege of increasing the electives to twenty hours, provided the student has received a standing of 85 per cent. in all studies for the preceding semester. This rule also applies to the Middle Course students.

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OUTLINE OF MIDDLE COURSE IN AGRICULTURE

Freshman Year

FIRST SEMESTER

	Hours per Week
English 1 (L. & S.)	3
Chemistry 1 (L. & S.)	5
Agronomy 1	2½
Animal Husbandry 1	2½
Military Drill	2
Gymnastics	2
Electives in College of Agriculture	3

SECOND SEMESTER

English 1 (L. & S.)	3
Chemistry 1 (L. & S.)	5
Agricultural Engineering 1	2½
Dairy Husbandry 1	2½
Military Drill	2
Gymnastics	2
Electives in College of Agriculture	3

Sophomore Year

FIRST SEMESTER

Biology 1 (L. & S.)	5
Bacteriology 1 (L. & S.)	3
Horticulture 1	2½
Animal Husbandry 2	2½
Military Drill	2
Gymnastics	2
Electives in College of Agriculture	3

SECOND SEMESTER

Agricultural Chemistry 1	2
Agricultural Bacteriology 20	3
Soils 1	3
Soils 2	3
Military Drill	2
Gymnastics	2
Electives (3 required in the College of Agriculture)	5

Students taking the Middle Course and desiring to transfer

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to the Long Course, must be prepared to spend more than the usual four years, in order to complete the requirements.

Students who have completed the work prescribed in the above outline, and who have had at least six months' practical farm experience, will be awarded a certificate.

DEPARTMENTS OF INSTRUCTION

THE LONG AND MIDDLE COURSES IN AGRICULTURE

AGRICULTURAL CHEMISTRY

PROFESSORS BABCOCK, HART, WOLL; DR. MC COLLUM; MR. OLSON, MR. SUZUKI, AND MR. TOTTINGHAM.

The courses offered in this Department are intended to give a broad view of farm chemistry, useful to the general agricultural student, and to develop men fitted for instructional or experimental work in the various fields of chemical activity applied to agriculture. Courses 1 and 2 are general and are open to students who have completed General Chemistry 1, and have had at least one semester's work in qualitative and quantitative analysis. These courses must precede all other courses in the Department. Courses 3 to 5 are for undergraduate students desiring a more detailed knowledge of the special subjects treated and are preliminary to greater specialization. These courses should be preceded or accompanied by work in Physics and Biological Science. Course 5 should be preceded or accompanied by a course in Organic Chemistry. Physiology is a desired prerequisite. Course 4 is a prerequisite to thesis work in Dairy Chemistry and courses 3 and 5 should precede the preparation of a thesis on topics relating to Plant and Animal Chemistry. A general course in Microscopic Technique is a prerequisite to course 21. All other advanced courses in this department are open to undergraduates and graduates who have had the necessary preliminary training.

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Primarily for Undergraduates

1. Agricultural Chemistry. A general discussion of chemistry applied to the farm, including the chemistry of plants and animals and the processes involved in their growth. *Second semester; two lectures a week; two unit-hours.* Professor HART.
2. Agricultural Analysis. A course in analytical chemistry applied to agricultural materials, including quantitive analysis of fertilizers, manures, soils, feeding stuffs, dairy products, insecticides. *Second semester; laboratory work, two three-hour periods; three unit-hours.* Professor HART and Mr. TOTTINGHAM.
3. Agricultural Analysis. A continuation of course 2, designed for those students desiring to follow more completely the scientific side of agricultural chemistry; select methods in the analysis of plant materials, feeding stuffs, fermented liquors, meat products, etc., will be studied. *First or second semester; three unit-hours.* Mr. TOTTINGHAM.
4. Dairy Chemistry. Embraces the study of the chemistry of milk and its products, including the detection and quantitative estimation of adulterants. *First semester; lectures and laboratory work; one lecture a week; laboratory work by arrangement; three or five-unit hours.* Professor HART and Mr. TOTTINGHAM.
5. Animal Chemistry. A discussion of the chemistry of feeding stuffs, the processes of digestion, the use of nutrients and the metabolic changes involved in the nutrition of animals. *First semester; lectures and laboratory work; two lectures a week; laboratory work by arrangement; two or five unit-hours.* Professor HART and Dr. MCCOLLUM.
19. Thesis Work in Agricultural Chemistry. The thesis may be taken in Plant or Animal Chemistry or in Dairy Chemistry. *Throughout the year; two unit-hours.* Professors HART, WOLL and Dr. MCCOLLUM.

For Undergraduates and Graduates

20. Advanced Bio-Chemical Analysis. Examination of plant and animal products, including quantitative work on the proteids, carbohydrates and fats, and such enzymic processes as are involved in the nutrition of plants and animals.

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Either semester; conferences, assigned reading, and laboratory work by arrangement; five unit-hours. Professors BABCOCK and HART and Dr. MCCOLLUM.

21. Detection of Adulteration of Concentrated Feeding Stuffs. Includes chemical and microscopical examinations. *Second semester; laboratory work; two unit-hours.* Professor WOLL.

22. Sugar Beet Analysis. Course intended for chemists in sugar factories. *First semester; laboratory work; two unit-hours.* Professor WOLL and Mr. OLSON.

Primarily for Graduates

30. Plant Nutrition. A study of the influence of various fertilizers upon the development and composition of plants to include field and pot experiments. *Throughout the year; conferences, assigned reading, and laboratory work by arrangement; five periods a week.* Professors BABCOCK and HART; and Mr. TOTTINGHAM.

31. Animal Nutrition. Composition and digestibility of foods and their influence upon the growth, production of milk, etc. *Throughout the year; conferences, assigned reading, with laboratory and barn work by arrangement; five periods a week.* Professors HART and WOLL and Dr. MCCOLLUM.

32. Advanced Dairy Chemistry. The approximate analysis of milk and its products, and a study of the changes which occur in the manufacture of dairy products. *Throughout the year; conferences and laboratory work by arrangement; five periods a week.* Professors BABCOCK and HART.

33. Seminary in Agricultural Chemistry. Original articles of importance will be studied in detail, with a view to broaden and deepen the understanding and to act as a stimulus to further research. *Throughout the year; once every two weeks.* Professors BABCOCK, HART and WOLL and Dr. MCCOLLUM.

SOILS

PROFESSOR WHITSON; ASSISTANT PROFESSOR STODDART; AND MR. JONES.

Courses 1, 2, and 21 are general in character and are adapted to the needs of all students of Agriculture. In addition to these courses, Courses 3, 4 and 20 are required of students taking their

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major in Soils, and form a basis for the more advanced courses designed to prepare students for instructional or investigational work in Agronomy, Soil Fertility or Land Drainage. Advanced students specializing in this subject are advised to elect courses in Chemistry, Vegetable Physiology, Agronomy, Geology or Hydraulics, as required by their special needs, during their senior and graduate years.

Primarily for Undergraduates

1. Principles of Soil Physics and Fertility. An introductory course on the origin, composition, tilth and fertility of soils. *Second semester; three lectures and two laboratory periods weekly; five unit hours.* Professor WHITSON; Assistant Professor STODDART and Mr. JONES.
2. Land Drainage. The principles of land drainage and the surveying operations pertaining thereto. Field work in leveling, mapping, and chaining for drainage systems and practical work in tile laying. *Second semester; three lectures a week for the first nine weeks and field work six hours per week for the second nine weeks; three unit-hours.* Mr. JONES.
3. Soil Analysis. A laboratory course on the methods of chemical analysis adapted to the study of soil fertility. *First semester; three, four or five unit-hours.* Assistant Professor STODDART.
4. Soil Physics. Laboratory work on mechanical analysis and temperature of soil and the movement of soil moisture. During the last half of the semester a portion of the study is carried on in the field. *Second semester; three or five unit-hours.* Mr. JONES.

19. Thesis work. *Through the year; two unit-hours.* Professor WHITSON; Assistant Professor STODDART; and Mr. JONES.

For Undergraduates and Graduates

20. Soil Management. An advanced study of the adaptation of systems of farming to soil types; the management of sand, marsh and heavy clay soils; the rotation of crops; use of fertilizers, and of the influence of various systems of farming on the maintenance of fertility. *First semester; two lectures per week; two unit-hours.* Professor WHITSON.

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21. Soil Chemistry. A lecture course on the chemical changes involved in soil fertility. This course must be preceded or accompanied by at least three unit-hours of course 3. This course alternates with course 30 on the origin of soils. *First semester; twice weekly; two unit-hours.* Assistant Professor STODDART.

22. Soil Physics. Lectures on the physical properties of soil, including temperature, movements of moisture, and the interpretation of the mechanical analysis. Methods of cultivation are formulated, based upon the principles studied. At least three unit-hours of course 4 must precede or accompany this course. *Second semester of alternate years; two unit-hours.* Mr. JONES.

23. Drainage Design. Advanced work in making field observations and designing drainage systems including a detailed study of those located in the vicinity of Madison, or elsewhere, of convenient access. Students preferring work along irrigation lines will be given work in water measurements, ditch capacities, and devices for the distribution of water. Conferences and field work. *First semester; hours and credit to be arranged.* Mr. JONES.

24. Plant Nutrition. The course includes the study of the relations of the plant and soil, such as the influence of acidity and alkalinity, the adaptation of root systems to soil texture, the effect of root excretions on availability of nutrient material, and the use of native vegetation as an indication of the fertility of virgin soils. This course alternates with Course 25. (Given in 1909.) *Second semester; lectures and laboratory work; two unit-hours.* Professor WHITSON.

25. Agricultural Climatology. A brief introduction to general meteorology followed by the study in detail of the relation of climate to soil fertility and to crops. To alternate with course 24. (Given in 1908.) *Second semester; lectures and laboratory work; two unit-hours.* Professor WHITSON.

Primarily for Graduates

30. Origin, Classification, and Mapping of Soils. A study of the processes of soil formation and of the classification and mapping of soils. This course alternates with course 21. *Second semester; lectures and field work; two unit-hours.* Professor WHITSON, and Assistant Professor STODDART.

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31. Research Work. Graduate students with sufficient preparation will be assigned special problems for study. Professor WHITSON; Assistant Professor STODDART; and Mr. JONES.

ANIMAL HUSBANDRY

PROFESSORS ALEXANDER, HENRY, HUMPHREY; ASSOCIATE PROFESSOR OTIS; MR. FULLER, MR. KLEINHEINZ, AND ASSISTANTS.

The courses outlined in this Department are suited to the needs of students who intend to become stockmen or instructors and investigators in Animal Husbandry. Courses 1 and 2 are required of all students in Agriculture. Course 21 is prerequisite to course 25; course 22 is prerequisite to course 26; courses 24 and 26 are prerequisites to course 30; courses 22 and 26 are prerequisites to course 31.

Primarily for Undergraduates

1. Elementary Live Stock Judging. A study of the points and characteristics of the various breeds of cattle, horses, sheep and swine. *First semester; lectures and laboratory work. two and one-half unit-hours.* Professors ALEXANDER and HUMPHREY, Mr. FULLER, Mr. KLEINHEINZ, and assistants.
2. Live Stock Practice. The application of approved methods in managing and treating farm animals and the recognition and first aid treatment of their more common ailments. *First semester; lectures and laboratory work, two and one-half unit-hours.* Professors ALEXANDER and HUMPHREY, Mr. FULLER, Mr. KLEINHEINZ, and assistants.

19. Thesis work. *Both semesters. Two unit-hours.* Professors ALEXANDER and HUMPHREY, Associate Professor OTIS, and Mr. FULLER.

For Undergraduates and Graduates

20. Breeds of Live Stock. A study of the origin, development and characteristics of the various breeds of live stock. *First semester; lectures with demonstrations. Three periods a week. Three unit-hours.* Professors ALEXANDER and HUMPHREY, Mr. FULLER, Mr. KLEINHEINZ, and assistants.
21. Elements of Veterinary Science. A lecture and text book course on the rudiments of histology, anatomy, and physiology, with practical applications to the selection, judging

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and care of animals in health and disease. *Second semester. Two lectures a week. Two unit-hours.* Professor ALEXANDER.

22. Animal Nutrition. A study of the laws of animal nutrition, the composition of feeding stuffs and the standard rations for the nourishment of farm animals. *First semester; lectures and recitations three times a week. Three unit-hours.* Associate Professor OTIS.

23. Advanced Live Stock Judging. Practical applications of the principles and standards governing the judging of the various classes and breeds of live stock. *First semester; four periods a week. Four unit-hours.* Professors ALEXANDER and HUMPHREY, Mr. FULLER, Mr. KLEINHEINZ, and assistants.

24. Science and Art of Breeding. A study of the laws, principles and approved methods relating to the breeding of live stock. *Second semester; three lectures a week. Three unit-hours.* Professor HUMPHREY.

25. Veterinary Science. A lecture and text book course on hygiene, and diseases of animals, with illustrations and practical demonstrations. *Second semester; two lectures a week. Two unit-hours.* Professor ALEXANDER.

26. Live Stock Feeding. The rational feeding of farm animals and a study of the results of nutrition researches at experiment stations of America and Europe. *Second semester; three lectures a week. Three unit-hours.* Associate Professor OTIS.

27. Live Stock History. A study of leading individuals and families of live stock including records and pedigrees. *Second semester; one lecture, assigned work, recitations twice weekly. Four unit-hours.* Mr. FULLER.

Primarily for Graduates

30. Live Stock Problems. A study of problems relating to Animal Husbandry. *Both semesters; assigned reading or research work. Conferences weekly. Five unit-hours.* Professors ALEXANDER and HUMPHREY, Associate Professor OTIS, Mr. FULLER, and Mr. KLEINHEINZ.

31. Nutrition Researches. A study of the research work relative to the nutrition of farm animals as conducted at the lead-

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ing experiment stations of America and Europe. *First semester; lecture once a week; two library periods by arrangement. Three unit-hours.* Professor HENRY.

DAIRY HUSBANDRY

PROFESSOR FARRINGTON, ASSISTANT PROFESSOR SAMMIS, MR. BENKENDORF AND ASSISTANTS.

This department offers instruction in the theory and art of manufacturing dairy products.

Course 1 is designed to give instruction in the manufacture of butter from a farm dairyman's standpoint.

Courses 1, 2, 3 and 6 constitute what may be termed a creamery course, fitting persons to become operators, inspectors, or managers of large creameries, etc.

Courses 1, 2, 4 and 6, similarly constitute a cheddar cheese course, fitting men for the operation or management of cheddar cheese plants.

Course 1 is a prerequisite to all courses but 6; course 2 to 20; course 3 to 21; course 4 to 22.

Primarily for Undergraduates

1. General Farm Dairying. An elementary study of milk, methods employed for testing for fat and acidity, use of the lactometer, and curd test. Instruction in hand separators, and the principles involved in the ripening and churning of cream under farm conditions. *First half of second semester. Two lectures and three laboratory periods for nine weeks; hours to be arranged. Two and one-half unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.
2. Milk Inspection. A supplementary course including various methods of fat determination and acidity; detection of physical adulterations; various methods of cream separation, and conditions influencing such operations. *First semester; one lecture and two laboratory periods per week. Hours to be arranged. Three unit-hours.* Mr. BENKENDORF.
3. Creamery Butter Making. A course in the theory and practice of butter manufacture under commercial conditions. *Second semester; lecture and laboratory work; hours to be arranged. One lecture, two or four laboratory periods. Three or five unit-hours.* Professor FARRINGTON, Mr. BENKENDORF and assistant.

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4. Cheddar Cheese Making. Practical work in making, curing and scoring cheddar cheese, with lectures on the nature of the physical and chemical changes involved in the processes. *Second semester; one lecture a week. Cheese making two or four hour periods. Time to be arranged. Three or five unit-hours.* Assistant Professor SAMMIS and assistant.

5. Pasteurization. A study of the various methods of pasteurization of milk and cream under commercial conditions. *Second semester; laboratory work, assigned reading, and conferences. Two unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.

6. Dairy Machinery. Shop practice with engines, boilers, artificial refrigerating machinery, pipe fitting, etc. *Second semester; laboratory work, assigned reading, and conferences. Hours to be arranged. Three unit-hours.* Mr. BENKENDORF and assistant.

7. Foreign Cheese Making. A study of the manufacture of Swiss, Brick and Limburger cheese. *Second semester; laboratory, conferences, and assigned reading. Hours to be arranged. Two unit-hours.* Professor FARRINGTON and Mr. MARTY.

19. Thesis. The thesis may be written on assigned topics in the department. *Throughout the year. Two unit-hours.* Professor FARRINGTON.

For Undergraduates and Graduates

20. Milk Inspection and Testing. Methods used at farms, factories, and city supply stations, including the inspection of a number of farm dairies. *Throughout the year; conferences, laboratory and field work. Hours to be arranged. Three or five unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.

21. Butter Yield and Quality. A study of the various factors in the process of butter making that influence the yield and the quality of the butter. *Throughout the year.* Conferences, *laboratory and field work. Hours to be arranged. Three or five unit-hours.* Professor FARRINGTON and Mr. BENKENDORF.

22. Cheese Making and Curing. A study of the effects produced by varying the usual processes of cheese making. *Through-*

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out the year. Conferences and laboratory work. Hours to be arranged. Three or five unit-hours. Professor FARRINGTON and Assistant Professor SAMMIS.

HORTICULTURE

PROFESSOR SANDSTEN, ASSISTANT PROFESSOR J. G. MOORE, MR. MILWARD, AND MR. ROGERS.

The courses offered in this department are designed to give the student a thorough working knowledge of the principles and practices of the most important lines of horticultural work.

Course 1 is prerequisite to all other courses offered by this department.

Soils 1 is prerequisite to course 6.

Course 2 is prerequisite to course 21.

Courses 6 and Agricultural Botany of the Botanical department are prerequisite to course 20.

Primarily for Undergraduates

1. General Horticulture. An introductory course designed to cover the principles of fruit growing and their application to our common fruits. *First semester; five lectures a week for one-half semester; two and one-half unit-hours.* Assistant Professor MOORE.
2. Fruit Growing. This course covers practical work with spraying, pruning, cultivating and various other orchard practices, including construction of fruit packages, plans for storage houses, etc. *Second semester; two laboratory periods a week; two unit-hours.* Assistant Professor MOORE.
3. Vegetable Gardening. Designed to cover the practices and principles involved in the growing of vegetables. Includes practical work in the gardens, hot bed and cold frame construction, and manipulation. *Second semester; one lecture and two laboratory periods. Three unit-hours.* Mr. MILWARD and Mr. ROGERS.
4. Vegetable Forcing. This course includes a discussion of forcing house construction and heating; principles involved in growing vegetables under glass with practical work in the forcing houses. *First semester; one lecture and one laboratory period a week: two unit-hours.* Assistant Professor MOORE.

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5. Economic Entomology and Pathology. A study of insects injurious to horticultural and agricultural crops. *Second semester; two laboratory periods a week; two unit-hours.* Mr. MILWARD.
6. Landscape Gardening. Field work, planning and mapping of grounds, lawns, etc. *Second semester; lectures and two laboratory periods a week; two unit-hours.* Professor SANDSTEN.
7. Plant Propagation. Instruction in the various methods of propagating horticultural plants. *Second semester; one lecture and one laboratory period a week; two unit-hours.* Assistant Professor MOORE.
8. Floriculture. The propagation and care of greenhouse, garden, and lawn plants with special reference to home floriculture. *Second semester; lectures and laboratory work; three unit-hours.* Assistant Professor MOORE.
19. Thesis. Based on research or experimental work in the department. *Two unit-hours.* Professor SANDSTEN.

For Undergraduates and Graduates

20. Plant Breeding. A study of the various laws relating to plant breeding and their application to horticulture. *Two or more laboratory periods a week at hours to be arranged.* Professor SANDSTEN.
21. Experimental Horticulture. Planning of experiments, keeping records, and experimental work in the laboratory, greenhouses, or orchards. *Two or more laboratory periods a week; two to five unit-hours.* Professor SANDSTEN and Assistant Professor MOORE.
22. Pomology. Advanced course in the study of the classification and identification of our common fruits. *First semester; one lecture and one laboratory period a week; two unit-hours.* Assistant Professor MOORE.

BACTERIOLOGY AND HYGIENE

PROFESSORS RAVENEL, RUSSELL; ASSOCIATE PROFESSOR FROST; ASSISTANT PROFESSOR HASTINGS; MR. HOFFMANN, MR. NELSON, AND MR. SMITH.

The courses in agricultural bacteriology are planned to meet the needs (1) of students wishing to obtain a general idea of the

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relation of bacteria to agricultural processes; (2) of students intending to devote themselves to dairy husbandry or to veterinary medicine; (3) of students wishing to fit themselves for instructional or research work in general and applied bacteriology.

The course in general bacteriology (course 1) is a prerequisite for all other courses in agricultural bacteriology. Students who intend to take further work in the department, should take course 20 as a five hour study. Students wishing to major along the line of animal diseases should take courses 2 and 22.

Primarily for Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *First semester; lectures and laboratory; three unit-hours. Given in the College of Letters and Science.* Associate Professor FROST and Mr. NELSON.

3. Thesis Work in Agricultural Bacteriology. Students who desire to major in this department may select some special problem in animal diseases, dairy, or soil work, as thesis subject. *Throughout the year; two unit-hours.* Professors RAVENEL and RUSSELL; Assistant Professor HASTINGS and Mr. HOFFMANN.

For Undergraduates and Graduates

2. Medical Bacteriology. A consideration of the relation of bacteria to disease processes in man and animals. A course designed to give the students who intend to study human or veterinary medicine, a survey of the subject of pathogenic bacteria. This course should be taken by students intending to devote themselves to general bacteriology. *First semester; lectures and laboratory; five unit-hours.* Professor RAVENEL; Associate Professor FROST; Mr. NELSON and Mr. SMITH.

20. Agricultural Bacteriology. A general survey of the relation of bacteria to agriculture, embracing their relation to soils, manures, diseases of plants and animals, and to dairying. *Second semester; lectures; three or five unit-hours.* Professor RAVENEL; Assistant Professor HASTINGS; Mr. HOFFMANN and Mr. SMITH.

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21. Dairy Bacteriology. The relation of bacteria to the production of market milk, butter and cheese. *First semester; lectures and laboratory work; three unit-hours.* Assistant Professor HASTINGS.

22. Transmissible Diseases of Animals. A study of the transmissible diseases of domestic animals, especially important from the standpoint of the stockman. *Second semester; lectures; three unit-hours.* Professor RAVENEL.

Primarily for Graduates

30. Advanced Agricultural Bacteriology. Students who have sufficient preliminary training may take up the study of special problems in animal and plant diseases, in soil and dairy work. *Throughout the year; conferences and laboratory work; three unit-hours.* Professors RAVENEL and RUSSELL; Assistant Professor HASTINGS and Mr. HOFFMANN.

AGRONOMY

PROFESSOR MOORE AND MR. STONE.

Courses 1 and 2 in Agronomy train the student to judge competitive displays of grains and forage plants and understand the best methods of farm crop production. The instruction given is designed to fit the students to operate intelligently seed grain or general farms.

The new Agronomy Building is equipped with laboratories, seed rooms, judging rooms, and corn curing rooms, conveniently arranged for the students' use. A part of the University farm is used for breeding and testing farm crops which afford ample opportunity for student study and investigation.

The higher courses are more especially designed to fit students for positions with the United States Department of Agriculture, seed firms, or as assistants in experiment stations and colleges of agriculture, or still further prepare them for solving the more complex problems on the farm.

As a prerequisite for courses 19, 20, and 30, the student should first complete courses 1 and 2 in Agronomy and a course in Systematic Botany.

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Primarily for Undergraduates

1. Cereals. Includes a systematic study of the judging of Indian corn and leading small cereals grown in Wisconsin. The testing, planting, cultivation, harvesting, storing, and marketing of grain crops receive special attention. A study will be made of cereal rotation and its effects and a systematic arrangement of the farm fields for growing grains. *First semester. Lectures and laboratory work. Two and one-half unit-hours.* Professor MOORE and Mr. STONE.
2. Forage Plants. A study of forage plants for seed and feed production. The testing, judging and sowing of their seeds, best methods of handling and curing the crops. Alfalfa, clovers, millets, timothy, red top, corn, sorghums, soy beans, peas, various grasses, and grains for hay crops are especially considered. A continuation of grain judging and grading given in course 1. *Second semester; lectures and laboratory work. Three unit-hours.* Professor MOORE and Mr. STONE.

19. Thesis. Original work and investigation on some assigned topic, bearing upon farm crops. Actual experiments will be required as far as practicable in the thesis work. *Throughout the year. Two unit-hours.* Professor MOORE.

For Undergraduates and Graduates

20. Grain Inspection and Weed Control. Embraces a thorough study of grain, grass and legume seed, identification and inspection, including germination and purity tests. Purity tests will include the determination of the foreign seeds and foul material. The common and noxious weeds and their seeds will be studied with reference to their classification, to their injurious influences on the crops mentioned, and to the best means of prevention and eradication. *First semester; lectures, assigned readings and laboratory work. Three unit-hours.* Mr. STONE.

Primarily for Graduates

30. Breeding Grains and Forage Plants. A study of the methods pursued by plant breeders, supplemented by field work in the propagation of new varieties of grains and forage plants on the Station Farm. Common diseases and insect

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enemies that affect grains and forage plants, with best methods of prevention or extermination, will receive special attention. Outlines for experiments and original investigation of farm crops from a scientific and practical standpoint will be discussed. *Throughout the year; conferences, assigned readings and laboratory work. Three unit-hours.* Professor MOORE.

AGRICULTURAL ENGINEERING

ASSISTANT PROFESSOR OCOCK.

The courses offered in this department instruct the student in the care and management of farm machinery; planning and constructing farm buildings; preparing and laying concrete for floors and walks, and in practical road building. These courses also offer training for students desiring to enter instructional or investigational work.

Course 1 covers in a general way the fundamental work of the department. Courses 2 and 4 cover many of the general and specific problems that arise in connection with the construction of farm buildings and fences. Courses 3 and 5 enable the operator to obtain the maximum efficiency and durability with the principal farm machines. It is important that the student bring to the work a fund of practical experience. It is desired that courses 3 and 5 be preceded by shop work (courses 1 and 7 of Mechanical Engineering).

Primarily for Undergraduates

1. General Agricultural Engineering. A general course in farm power, tillage and harvesting machinery; construction and ventilation of farm buildings; demonstrations of the uses of concrete for farm purposes; practical road construction. *Second semester; second half, lectures and laboratory work. Two and one-half unit-hours.* Assistant Professor OCOCK.
2. Rural Architecture. The location of farm buildings with reference to general convenience and sanitation; construction of the farm house, barns, silos, etc.; heating and ventilation; platting home grounds, paddocks and fields. *First semester; lectures and laboratory practice. Two two-hour periods, two unit-hours.* Assistant Professor OCOCK.

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3. Power Machinery. The construction, efficiency and operation of horse powers, windmills, gasoline and traction engines, electrical farm motors, pumps, feed grinders, etc. *First semester, lecture and laboratory practice. Three two-hour periods; three unit-hours.* Assistant Professor Ocock.
4. Cement Work. Instruction in concrete for farm purposes. *Second semester; lectures and laboratory practice. Two two-hour periods; two unit-hours.* Assistant Professor Ocock.
5. Farm Machinery. Tools and machinery for preparing the seed bed, sowing or planting, tilling and harvesting crops. *Second semester; lectures and laboratory practice. Three two-hour periods; three unit-hours.* Assistant Professor Ocock.
6. Farm Machinery. Work with Farm Machinery. For students preparing themselves as field experts. Prerequisite, course 5 or its equivalent. *Second semester; lectures and laboratory practice, hours to be arranged. Three unit-hours.* Assistant Professor Ocock.
7. Road Building. The construction of earth, macadam, and stone roads; practical work with the King road drag, road graders, etc. Field work in road drainage, leveling, etc. *Second semester; lectures and laboratory practice, hours to be arranged; two unit-hours.* Assistant Professor Ocock.

19. Thesis. This course varies in the subject matter, according to the lines in which the thesis is written. *Throughout the year; two unit-hours.* Assistant Professor Ocock.

AGRICULTURAL ECONOMICS

ASSOCIATE PROFESSOR TAYLOR.

The following courses on Economics are presented from the agricultural point of view. Courses 1 and 26 are intended for juniors. Courses 27 and 28 may be elected by seniors and graduate students who have taken courses 1 and 26.

Primarily for Undergraduates

1. The Elements of Economics. An introductory course in general economics in which illustrative material is taken from the fields of interest to the farmer. The following subjects will be treated: the evolution of industrial society; the in-

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stitutions which regulate the economic activities of men; economic motives; the natural and the artificial conditions of wealth production; the theory of value, money, credit, rent, wages, interest, and profits; taxation and public expenditure; public ownership and regulation of industries. *First semester. Three recitations per week; three unit-hours.* Associate Professor TAYLOR.

26. Agricultural Economics. This course consists of a study of the economic principles which underlie farm management, estate management, and agrarian legislation. Especial attention is given to the following subjects: the principles to be followed in selecting land, equipments and crops, and in determining the proper degree of intensity of culture, the proper size of farms, etc.; the forces and conditions which determine the price of land, equipments, and farm products; the ownership of land; the means of acquiring land; the leasing of land; co-operation in agriculture; the government in its relation to agriculture. *Second semester; two recitations per week; two unit-hours.* Associate Professor TAYLOR.

18. Thesis Course. Opportunity will be given for research work on the various economic problems in agriculture according to the interests of the students. *Throughout the year; two unit-hours.* Associate Professor TAYLOR.

For Undergraduates and Graduates

27. Historical and Comparative Agriculture. This course consists of a sketch of the development of agriculture in England and the United States, and a special study of the recent history and present status of American agriculture, with an attempt to find the explanation of historical changes and geographical differences in methods of farm management. *First semester; two lectures per week; two unit-hours.* Associate Professor TAYLOR.

28. Research Work. In 1908-09 this course will be devoted to the problems of land ownership and tenancy in the United States. *Second semester; two unit-hours.* Associate Professor TAYLOR.

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AGRICULTURAL EDUCATION

EMERITUS PROFESSOR HENRY.

Primarily for Undergraduates

1. Elements of Agriculture. The fertility of the land; the crops of the farm, how they feed and grow; farm animals, their care and nutrition. This course is designed to illustrate and make plain, so far as possible within the time limits, the great general facts and principles underlying successful agricultural practice. It is primarily designed for teachers preparing to give elementary instruction in agriculture, but it is also open to the general student. Members of the class having needs not met by the regular instruction, will be given special help. *First semester; two lectures a week; two unit-hours.* Professor HENRY.

THE SHORT COURSE IN AGRICULTURE

This course covers two terms of fourteen weeks each, beginning about the first of December, each year.

FIRST YEAR

Fourteen lectures in feeds and feeding. Assistant Professor OTIS.

Thirty-five lectures in the breeds of live stock with score-card practice additional in stock judging. Mr. FULLER.

Thirty-five lectures in soils. Professor WHITSON.

Thirty-five lectures, with seventy hours' laboratory practice in plant life. Professor SANDSTEN, Assistant Professor MOORE, and Mr. MILWARD.

Twelve lectures in dairying. Professor FARRINGTON.

Seventy-two hours' practice in farm dairying and dairy laboratory. Mr. MICHELS.

A course in farm bookkeeping. Mr. STONE.

Fourteen hours of recitation and drill in parliamentary practice. Professor MOORE.

Fourteen lectures in farm crops. Professor MOORE.

Twenty lectures and recitations in elementary agricultural chemistry. Mr. TOTTINGHAM.

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SECOND YEAR

Twenty lectures on feeding farm animals. Professor OTIS.

Twenty lectures on breeding and managing live stock with seventy hours' practice in stock judging. Professor HUMPHREY, Professor ALEXANDER, and Mr. FULLER.

Thirty-five hours of lectures and laboratory practice in drainage and meteorology. Professor WHITSON, Mr. JONES, and Mr. SANDELL.

Seventy hours of lectures and laboratory practice in horticulture. Professor SANDSTEN and Assistant Professor MOORE.

Twenty-five lectures in veterinary science, with demonstrations. Professor ALEXANDER.

One hundred and twelve hours at workbench and forge. Professor KING and assistants.

Seventy hours of lectures and laboratory practice in agronomy. Professor MOORE and Mr. STONE.

Twelve lectures in agricultural economics. Professor TAYLOR.

Twenty lectures in bacteriology as applied to agricultural conditions. Professor RUSSELL.

An illustrated circular describing the Short Course in detail will be sent on application to Professor D. H. OTIS, College of Agriculture, Madison, Wis.

THE WINTER DAIRY COURSE

The course begins about the first of November each year and lasts twelve weeks. It is open to persons who have had at least six months' experience in creamery or cheese factory work.

Instruction in this course in dairying is given as follows:—

1. Lectures and class-room work.

Lectures on the constitution of milk, the conditions which affect creaming and churning, creamery management, and allied subjects. Professor FARRINGTON.

Lectures on creamery and cheese factory bookkeeping, calculating patrons' dividends, and other matters relating to the business of the creamery and cheese factory. Mr. BENKENDORF.

Lectures on practical cheese making. Assistant Professor MOORE.

Lectures with demonstrations on the influence of bacteria in the dairy. Assistant Professor HASTINGS.

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Lectures and demonstrations on the care and management of the boiler and engine. Assistant Professor THORKELSON.

Lectures on the feeding and management of dairy stock. Assistant Professor OTIS.

Lectures on breeding and selection of dairy stock. Professor HUMPHREY.

Exercises in parliamentary practice. Professor MOORE.

2. Milk Testing. This embraces instruction in the laboratory in estimating the fat and other constituents in milk, butter, and cheese by methods adapted to the factory and factory operators. *Eighteen hours a week.* Professor FARRINGTON and assistants.
3. Butter Making. Butter making is carried on daily on the creamery plan. The student learns to operate the modern forms of power centrifugal separators and pasteurizing machines. They attend to the ripening of the cream, churning, and packing butter, carrying on all the operations as they would be conducted in a creamery. *Twenty-four hours a week.* Professor FARRINGTON and assistants.
4. Cheese Making. In this course daily instruction is given in the manufacture of Cheddar cheese, the operations being carried on as in the regular factory, the students being required to take careful notes and make reports upon the process. Special instruction is also given in the making of Swiss, brick, and Limburger cheese. *Twenty-four hours a week.* Mr. MOORE and Mr. MARTY.
5. Dairy Machinery. This course provides instruction in firing and carrying for boilers, running engines, putting up shafting, cutting and fitting iron pipe, belt lacing, soldering, etc. *Twenty-four hours a week.* Professor FARRINGTON and assistants.

THE SUMMER DAIRY COURSE

In the summer course in dairying the student may enter at any time after March 1st and remain for an indefinite period. No previous preparation is required. The student will assist in all of the different operations of the University creamery, thus gaining much practical experience. Laboratory exercises and theoretical instruction will be given as required.

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Examinations and Certificates

To secure a dairy certificate, a student must have spent a full term in the Dairy School and successfully passed all examinations; and further, he must have had not less than two seasons' experience in a creamery or cheese factory, one of which must follow the period spent in the Dairy School. During the second season the candidate will report the operations of his factory monthly on blanks and have his work inspected by an authorized agent of the University.

An illustrated circular giving additional information concerning the Short Winter and Summer dairy courses will be sent on application to Professor E. H. Farrington, Madison, Wis.

FARMERS' COURSE

Instruction in the farmers' course includes daily lectures for two weeks by professors and instructors connected with the College of Agriculture. A part of the day is devoted to instruction in corn judging and the judging of live stock.

An illustrated circular giving details of the course will be sent on application.

THE AGRICULTURAL EXPERIMENT STATION

OFFICERS OF THE EXPERIMENT STATION

CHAS. R. VAN HISE, President of the University.
H. L. RUSSELL, Director.
S. M. BABCOCK, Assistant Director and Chief Chemist.
IDA HERFURTH, Executive Clerk.

W. A. HENRY, Emeritus Professor of Agriculture.
A. S. ALEXANDER, Veterinarian.
E. H. FARRINGTON, Dairy Husbandman.
E. B. HART, Chemist.
G. C. HUMPHREY, Animal Husbandman.
R. A. MOORE, Agronomist.
M. P. RAVENEL, Bacteriologist.

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E. P. SANDSTEN, Horticulturist.
A. R. WHITSON, Soil Physicist.
F. W. WOLL, Chemist.
E. G. HASTINGS, Assistant Bacteriologist.
J. G. MOORE, Assistant Horticulturist.
C. A. OCOCK, Agricultural Engineer.
D. H. OTIS, Animal Nutrition.
J. L. SAMMIS, Assistant Dairy Husbandman.
C. W. STODDART, Assistant Soil Physicist.
J. ACCOLA, Assistant in Animal Husbandry.
G. H. BENKENDORF, Assistant in Dairy Husbandry.
E. J. DELWICHE, Supt. Northern Wis. Sub Stations. (Iron River, Wis.)
O. J. DELWICHE, Assistant in Animal Husbandry.
J. G. FULLER, Assistant in Animal Husbandry.
R. T. HARRIS, Assistant in Dairy Tests. Fertilizer and Feed Inspection.
A. C. HABERSTICH, Assistant in Dairy Husbandry.
C. HOFFMANN, Assistant in Agricultural Bacteriology.
LOUISE M. JAHNS, Assistant in Soils.
E. R. JONES, Assistant in Soils and Drainage.
F. KLEINHEINZ, Shepherd.
GEO. S. HINE, Assistant in Fertilizer and Feed Inspection.
O. G. MALDE, Assistant in Cranberry Investigations. (Grand Rapids, Wis.)
E. V. MCCOLLUM, Assistant in Agricultural Chemistry.
C. J. MCCOMB, Assistant in Animal Husbandry.
G. MARTY, Assistant in Dairy Husbandry.
M. MICHELS, Assistant in Dairy Husbandry.
J. G. MILWARD, Assistant in Horticulture.
G. A. OLSON, Assistant in Agricultural Chemistry.
A. J. ROGERS, JR., Assistant in Horticulture.
K. W. SMITH, Assistant in Agricultural Bacteriology.
A. L. STONE, Assistant in Agronomy.
S. K. SUZUKI, Assistant in Agricultural Chemistry.
W. E. TOTTINGHAM, Assistant in Agricultural Chemistry.
IVA A. WELSH, Librarian.

The purpose of the Experiment Station is the promotion of agricultural science by investigation and experimentation. In the choice of subjects it endeavors to select those which possess

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the greatest importance to the farmers of Wisconsin, so far as the facilities at hand permit. The endeavor at all times is to give the investigations a fundamental character in order that the results may be real contributions to agricultural science. The station is also a means of disseminating general and miscellaneous information on agricultural topics, and its staff cheerfully devotes the necessary time to private and public correspondence and to personal interviews.

By the direction of the general government, which supplies a portion of the funds for maintaining the Station, there are issued an annual report and frequent bulletins. Twenty-four reports and 160 bulletins have been issued to date; 15,000 copies of the reports are printed annually, and the edition of the bulletins comprises from 5,000 to 25,000 copies. These bulletins and reports are free to all residents of the State upon application. The station mailing list now embraces about 18,000 names of farmers and others to whom the reports and bulletins are regularly sent.

FARMERS' INSTITUTES

INSTITUTE STAFF

GEORGE MCKERROW, Superintendent.
NELLIE E. GRIFFITHS, Clerk and Stenographer.

The third division of work of the College of Agriculture is the instruction of farmers who are unable to come to the University for study. This is made possible through generous legislative provisions, by which a carefully supervised system of farmers' institutes is maintained. The institutes are in immediate charge of a superintendent, who elaborates and controls the organization and maintenance of the institutes. He is aided by special conductors who assist in perfecting details and carrying the whole into effect. Members of the agricultural faculty render as much assistance as is consistent with their other duties. Experts in different departments are engaged to present special important themes. Lecturers are often brought from other states to treat on specific topics in which they are recognized authorities. Local talent is used to some extent and not the least of the educational

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benefits is the developing of latent ability in writing, speaking, and experimenting which has followed as a natural result from the interest awakened by this important stimulus.

During the institute season of 1907-08 one three-day, and ninety two-day institutes, a special tobacco and special dairy, two-day institutes, and seven one-day institutes will be held at as many places in the state. A cooking school will be held in connection with twenty-four of the institutes.

The Farmers' Institute Bulletin

To disseminate still more widely the best matter presented and discussed at the institutes, and to give much material permanency for its own sake and for its historical value, a bulletin giving a stenographic report of the closing institute of each year is issued. Bulletin No. 21 contains a stenographic report of the closing institute held at Mauston, in March, 1907. Sixty thousand copies of this bulletin have been issued. Eight thousand cloth bound copies will be placed in the school district libraries of the state; 35,000 will be given to the farmers in attendance at the institutes, and the remainder distributed through cheese factories, creameries, etc. Copies will be sent to all applicants living within the state, upon receipt of 10 cents to pay postage and mailing, if paper covers are desired, and 25 cents for cloth-bound covers. To those outside of Wisconsin, 25 cents for paper-covered and 40 cents for cloth-bound copies will be charged, to cover mailing and cost of publication.

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THE COLLEGE OF MEDICINE

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
C. R. BARDEEN, A. B., M. D., Professor of Anatomy. Dean.
C. E. ALLEN, Ph. D., Associate Professor of Botany. Secretary of the Faculty.

E. A. BIRGE, Ph. D., LL. D., Professor of Zoology.
H. C. BRADLEY, Ph. D., Assistant Professor of Physiological Chemistry.
C. H. BUNTING, B. A., M. D., Professor of Pathology.
JOSEPH ERLANGER, B. S., M. D., Professor of Physiology.
RICHARD FISCHER, Ph. C., Ph. D., Assistant Professor of the Theory and Practice of Pharmacy.
W. D. FROST, Ph. D., Associate Professor of Bacteriology.
O. T. GAGE, Ph. B., Assistant Professor of Physics.
R. A. HARPER, Ph. D., Professor of Botany.
E. G. HASTINGS, M. S., Assistant Professor of Bacteriology.
S. J. HOLMES, Ph. D., Assistant Professor of Zoology.
JOSEPH JASTROW, Ph. D., Professor of Psychology.
LOUIS KAHLENBERG, Ph. D., Professor of Chemistry.
EDWARD KREMERS, Ph. G., Ph. D., Professor of Pharmaceutical Chemistry.
VICTOR LENHER, Ph. D., Professor of Chemistry.
A. T. LOEVENHART, B. A., M. D., Professor of Pharmacology and Toxicology.
W. S. MARSHALL, Ph. D., Associate Professor of Entomology.
W. S. MILLER, M. D., Associate Professor of Anatomy.
J. B. OVERTON, Ph. D., Assistant Professor of Botany.
M. P. RAVENEL, M. D., Professor of Bacteriology.
B. W. SNOW, Ph. D., Professor of Physics.
J. H. WALTON, Ph. D., Assistant Professor of Chemistry.

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Instructors and Assistants

B. M. Allen, Ph. D., Instructor in Anatomy.
R. F. Allen, M. A., Assistant in Botany.
E. G. Arzberger, Ph. B., Assistant in Botany.
J. R. Blackman, A. B., M. D., Assistant in Physiology.
J. M. Brannon, A. B., Assistant in Botany.
A. G. DuMez, Ph. G., Assistant in Pharmaceutical Chemistry.
C. A. Fuller, Ph. D., Instructor in Bacteriology and Assistant in Hygienic Laboratory.
E. G. Grey, A. B., Assistant in Anatomy.
R. D. Hall, Ph. D., Instructor in Chemistry.
R. W. Hegner, M. S., Assistant in Zoology.
M. A. Hickman, M. A., Assistant in Botany.
A. R. Johnson, B. S., Assistant in Organic Chemistry.
W. F. Koelker, Ph. D., Instructor in Organic Chemistry.
F. C. Krauskopf, A. B., Instructor in Chemistry.
C. E. Lewis, Ph. D., Instructor in Botany.
W. G. Marquette, Ph. D., Instructor in Botany.
A. S. McDaniel, M. A., Instructor in Chemistry.
S. E. Moody, Ph. D., Instructor in Analytical Chemistry.
O. O. Nelson, A. B., Assistant in Bacteriology.
R. L. Schulz, Assistant in Pharmaceutical Chemistry.
K. W. Smith, Instructor in Bacteriology.
C. T. Vorhies, B. S., Assistant in Zoology.
G. Wagner, M. A., Instructor in Zoology.

The Executive Committee

Charles R. Bardeen, M. D., *Chairman.*
Joseph Erlanger, M. D.
R. A. Harper, Ph. D.
Louis Kahlenberg, Ph. D.
W. S. Miller, M. D.
M. P. Ravenel, M. D.

Organization

In 1886-87, in response to a request from the State Medical Society, there was established at the University of Wisconsin a course especially designed to prepare students for the study of medicine. From time to time there have since been added new

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scientific departments which have extended the special training thus offered. The success attained by those who have taken this pre-medical course has proved the value of a thorough laboratory training in science as a basis for clinical medicine. The importance of such training has meanwhile become generally recognized. During the past two decades the curriculum of American medical schools has been strengthened by the addition of courses in the basal sciences and by the requirement of scientific university training as a prerequisite for matriculation.

In departments already established at the University abundant facilities have been offered not only for the study of those subjects which are required for entrance into the leading medical schools, but also for the study of the majority of the subjects which constitute the first half of the curriculum in these schools.

During the legislative session of 1907, a bill was passed authorizing the establishment of a College of Medicine at the University. This college has been organized and was opened for the matriculation of students at the beginning of the fall semester, 1907. The complete work of the first year and a large portion of that of the second year of the medical curriculum is offered for 1907-08. Meanwhile, departments of pathology and of pharmacology and toxicology will be established, so that the complete first half of the medical curriculum will be offered by the fall of 1908. Lack of adequate clinical facilities prevents the establishment at Madison of the last half of the medical curriculum. Full credit will, however, be granted at leading medical schools for work at Wisconsin, so that on the completion of the work here the student may go to some school with abundant hospital and clinical facilities for the completion of his course by two years of further study.

Aims and Methods

The aims of the College of Medicine are fourfold:

1. To encourage a thorough preliminary medical education, and to offer adequate facilities for a thorough preparation for clinical work.

2. To aid physicians and others in the state to keep up with the rapid advances in the application of science to medicine.

3. To promote the development of preventative medicine and hygiene.

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4. To stimulate research in the sciences upon which modern medicine is based.

Admission Requirements in the College of Medicine

For matriculation without condition in the College of Medicine, a student must furnish evidence:

1. That he has satisfied the requirements for admission to the College of Letters and Science.
2. That he has completed at least the full equivalent of two years work in this college.
3. That he has successfully pursued courses equivalent to Physics 1, Chemistry 1 and 20, Biology 1, one semester of Anatomy 5, and Anatomy 15.
4. That he has studied Latin grammar and possesses such knowledge of the language as may be acquired by reading at least three books of Caesar or their equivalent.
5. That he has a reading knowledge of French and German.

Admission to Advanced Standing

A student who has completed elsewhere work fully equivalent to that required for matriculation and to that of the first year of the medical curriculum, may be admitted to the second year of the medical course.

Medical Certificate

Upon the successful completion of the two years of the medical curriculum at Wisconsin a student will be given a formal certificate at the following commencement. A student who completes less that the two years of the medical course may, however, obtain credentials covering the pre-medical and medical studies which he has pursued.

Degrees of Bachelor of Arts and Bachelor of Science

For requirements for the degree of Bachelor of Arts, see Index under Degrees. Candidates for this degree may be registered but one year in the College of Medicine.

Candidates for the degree of Bachelor of Science (Medical Course) may be registered two years in the College of Medicine. The language requirements are those required for admission to the College of Medicine. Students may elect up to eighteen unit-

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hours of work per semester, and may confine their work to the science and language groups of studies.

CHOICE OF COURSES

Pre-Medical

Complete Arts Course Preceding the Medical Course

Students who can afford the time should take the A. B. degree before entering upon the specialized four-year medical curriculum. It usually takes four years to fulfil the requirements for this degree, but many students by taking extra studies and summer work fulfill these requirements in three years. About half of the time in the arts and science course must be spent in fulfilling the requirements for matriculation in the College of Medicine. The other half may wisely be spent partly in advanced work in one of the basal sciences, such as chemistry, botany, zoology, anatomy, physiology, psychology, bacteriology, pathology or pharmacology, and partly in courses for general culture. The premedical student will find of special value courses in English, History, Philosophy, Political Economy and Political Science. By consultation with his adviser, each student may choose courses best suited to his tastes and needs.

The work chosen with direct regard to the requirements for matriculation in the College of Medicine should be so arranged that a logical sequence of studies may be followed.

In language, Latin should be taken in the freshman year if not presented for entrance to the University. If German is presented for entrance, it may be continued during the freshman and sophomore years. French should, as a rule, be taken during the sophomore year.

Chemistry should be taken for at least two years, course 1 in General Chemistry being followed by course 20 in Organic Chemistry, and course 11a in Quantitative Analysis. If it is desired to take a major in Chemistry, Chemistry 1 should be taken during the freshman or the sophomore year.

In the biological sciences at least two years work should be taken; Biology 1 being followed by Anatomy 5 and 15. If it is desired to take a major in one of the biological sciences (botany, zoology, anatomy, physiology, psychology, bacteriology, pathology or pharmacology), Biology 1 should be taken at least as early as the sophomore year.

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Physics 1 should be taken during the freshman or the sophomore year.

Seven-Year Combined Course

By taking the first year of the medical curriculum in the senior year, the A. B. and M. D. degrees may be obtained in seven years. This permits of less opportunity than the regular arts course for taking work outside a somewhat special line of studies. About half of the student's time in this special arts course is taken up in preparing to meet the requirements for matriculation in the College of Medicine, and a quarter is taken up in this college, thus allowing but a fourth of the time for electing general subjects. The remarks concerning the choice of studies for the arts course completed before entrance upon the medical curriculum also apply to the first three years of the seven-year combined course.

Students desiring to finish the medical course at the Johns Hopkins, Harvard, or Western Reserve University, must take either this course or the preceding.

Six-Year Combined Course

Students in the College of Letters and Science, candidates for the B. S. degree, may elect work in the College of Medicine during the last two years of this course. The M. D. degree may then be obtained by two years further study at a medical school which does not require more than two years of college work for matriculation. The student has comparatively little free choice of studies outside of the work required for matriculation in the College of Medicine and in the medical curriculum. He will have to follow closely the following schedule:

Medical Studies

Two years work in the fundamental medical sciences is arranged in accordance with the schedules which prevail in those medical schools that have high standards for their entrance requirements. The chief studies of the first year are systematic human anatomy, histology, neurology, general bacteriology and physiological chemistry. A preliminary course in physiology is also given. Some opportunity is given for making up conditions in chemistry, comparative anatomy, embryology or language or for advanced work. In the second year topographical anatomy, together with physical diagnosis, practical physiology, pathologi

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cal anatomy and physiology, bacteriology, pharmacology and toxicology are the chief subjects. The courses are arranged in conjunction with those of the pre-medical course, so that a logical sequence of studies may be followed, and so that the student may concentrate his work upon closely allied subjects. While it is believed that the arrangement of courses recommended will best fit the needs of the average student, considerable freedom of election will be allowed both in the pre-medical work and in the work in the College of Medicine, especially to those who finish the arts course before taking the medical course, or to those taking the seven-year combined course. Full credit for one year of medical work will not, however, be allowed unless the required preliminary studies and the studies of the first year of the medical course have been completed, and the student has been registered two semesters in the College of Medicine. Full credit for two years of medical work will be granted only to those who have satisfied the preliminary requirements, who have registered for two college years as medical students, and who have completed all the studies of the regular curriculum.

First year:

Histology, *Tu.*, *Th.*, *S.*, 9 *to* 12, *first semester.*
Neurology, *Th.*, *S.*, 9 *to* 12, *second semester.*
Physiological Chemistry, *M.*, *Tu.*, *W.*, *F.*, 10 *to* 1, *second semester.*
Physiology (preliminary), 12 *to* 1, *May and June.*
Human Anatomy, *daily* 2 *to* 5.
Bacteriology, *M.*, *W.*, 11, *six hours laboratory.*

Second year:

Anatomy (Topographical, including Physical Diagnosis), *first semester*, *M.*, *W.*, *F.*, 2 *to* 5.
Physiology, *first semester*, Lect. 12 *to* 1 *daily*, Lab. 2 *to* 5 *twice a week to Christmas.*
Psychology, *first semester*, Lect. *Tu.*, *Th.*, Lab. 2 *to* 5 *twice a week*, *Christmas to the end of the semester.*
Bacteriology, Pathology and Hygiene, *M.*, *W.*, *F.*, 8 *to* 12 *first and second semesters.*
Prescription Practice, *Tu.*, *Th.*, *at* 11, *and two hours laboratory*, *second semester.*
Pharmacology and Toxicology, *second semester*, *Tu.*, *Th.*, 2 *to* 5.
Thesis.

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When work of the medical course is elected previous to matriculation in the College of Medicine, advanced work in some of the medical sciences may be elected in the medical course.

Summary

Summary of the college work in science required for matriculation without conditions, and for certificates for the first and second years of the medical course:

Subject.	*Lectures and Recitations*	*Minimum laboratory hours*	*Unit hours*
Preliminary—			
Chemistry	128	192	10
Organic Chemistry	48	96	4
Physics	160	128	10
Biology	96	256	10
Comp. Anat.	32	64	3
Embryology	32	64	3
	496	800	40
First Year Medical Course—			
Histology	32	112	4
Neurology	32	64	3
Syst. Anat.	32	448	12
Physiology	30	...	2
Physiol. Chem.	20	148	4
Bacteriology	32	64	3
	178	836	28
Second Year Medical Course—			
Topogr. Anat. and Physical Diagn.	...	144	3
Physiology	80	72	7
Psychology	32	24	3
Med. Bact. and Pathology	96	288	12
Pharmacology and Toxicology	32	64	3
Prescrip. Pract.	2	2	2
Thesis	...	128	4
	242	722	34

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Courses for Physicians

The regular courses in the various departments are open to physicians on the adult special basis. It is hoped gradually to develop such shorter special courses as may be of greatest direct, practical benefit to the physicians of the state in aiding them to keep up with the rapid advance in the medical sciences. Suggestions concerning such courses are desired.

Courses for Health Officers

In conjunction with the State Department of Public Health, it is intended to develop such special courses for public health officers as may be of greatest aid to them in the performance of their important and difficult duties. Suggestions concerning such courses are requested from all interested in the subject.

Sanitary Engineering

Courses in Sanitary Engineering are given in the College of Engineering. See catalogue of the University and special bulletins of the College of Engineering.

Scientific Investigation

It is desired that the facilities of the various laboratories of the College of Medicine be utilized to the greatest advantage in the investigation of the causes and prevention of disease both in man and animals. The laboratories of the College of Medicine are freely open to those engaged in such investigations, and so far as possible, aid will be given in the carrying out of investigations of this character either at the University or elsewhere in the state.

FEES AND EXPENSES

College of Letters and Science

Resident tuition	Free
Non-resident tuition, per semester	$15.00
Incidental fees for all students, per semester	10.00
Gymnasium fee for all men students, per semester	1.00

College of Medicine

Resident tuition	Free
Non-resident tuition per semester	$20.00
Incidental fees for all students, per semester	15.00
Gymnasium fee for all men students, per semester	1.00

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Summer Session

General fee	15.00

Laboratory Fees

Biological laboratory, per semester	4.00
Comparative anatomy, neurology and embryology, per semester	5.00
Histology, per semester	8.00
Human anatomy, per semester	10.00
Physiology, per semester	10.00
Bacteriology, per each unit hour of work	1.50

PHYSICAL LABORATORIES.—The laboratory fee in the physical laboratories is $2.00 for each unit hour (2 hours per week of actual work) per semester.

PSYCHOLOGICAL LABORATORY.—The laboratory fee for the course in experimental psychology is $3.00; for other experimental work, $3.00 per semester, or $5.00 per year.

CHEMICAL LABORATORIES.—In these laboratories the deposit is from $15.00 to $25.00, depending upon the amount of work taken. The amount refunded will depend upon the chemicals used and the care exercised by the student.

The total amount of incidental and laboratory fees per year for pre-medical and medical students will range from about $60.00 to $80.00 according to the amount of laboratory work taken.

DEPARTMENTAL ANNOUNCEMENTS

For a description of the courses in psychology, see departmental announcement in the College of Letters and Science.

ANATOMY

PROFESSOR BARDEEN, ASSOCIATE PROFESSOR MILLER, DR. ALLEN, AND MR. GREY.

A group of courses intended to offer a comprehensive view of the gross and microscopic anatomy and the embryology of vertebrates with special reference to man, is given in the department. In addition, opportunities are offered for advanced work and research in anatomy. The laboratory is thoroughly equipped with apparatus, models, books and materials for advanced as well as elementary work.

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For those prepared to carry on advanced research special laboratory facilities are provided.

A Journal Club meets bi-weekly for the discussion of important contributions to anatomical science.

For Undergraduates and Graduates

5. Comparative Anatomy of Vertebrates. A series of seven animals is dissected for the study of vertebrate structure, and numerous demonstrations are given of the structure of related forms. Only those who have had training equivalent to that given in Biology 1 are admitted to this course. *First semester; M., W., F., at* 8 *to* 10. *Second semester; M., W., F., at* 2 *to* 4. The work of either or both semesters may be taken. Dr. ALLEN.

10. Histology and Organology. The study of the tissues, histology, is first taken up, and this is followed by the study of the minute structures of the chief mammalian organs in the following order: the blood and blood-forming organs, the organs of circulation, digestion and respiration, the genito-urinary organs, the skin and its appendages. Open only to those who have taken or are taking Course 5 or its equivalent. *First semester; Tu., Th., S., at* 9 *to* 12. *Four unit-hours.* Associate Professor MILLER.

15. Vertebrate Embryology. The development of the frog, chick and pig is studied by means of dissection and the use of microscopic preparations. Human embryology is studied from sections, special preparations and models. Open only to those who have taken one semester of course 5 or its equivalent. *Second semester; M., W., F., at* 8 *to* 10. Professor BARDEEN and Dr. ALLEN.

17. Problems of Vertebrate Embryology. This course involves a study of: (a) The development, structure and physiological relations of the sex-cells; (b) Early stages in the development of the embryo under normal and experimental conditions. Current theories of inheritance and regeneration will be discussed. *Second semester; M., W., F., at* 11 *to* 1. Dr. ALLEN.

21. Human Anatomy. In this course a thorough training is offered in the dissection of the human body, and in descriptive human anatomy. This course is open only to

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those who have had course 5 or its equivalent. *Throughout the year; daily, at 2 to 5. Six unit-hours per semester.* Professor BARDEEN.

22. Topographical Anatomy. A study of frozen sections and special preparations. *First semester; M., W., F., at 2 to 5. Three unit-hours.* Associate Professor MILLER.

23. Special Human Anatomy. Those qualified to do independent work may make arrangements for the study of human anatomy at other periods than those covered by course 21.

26. Neurology. This course consists of dissection of the human brain, and a study of the microscopic anatomy of the central nervous system and sense organs. Open only to those who have taken courses 5, 10 and 15, or their equivalents. *Second semester; Th., S., at 9 to 12. Three unit-hours.* Associate Professor MILLER.

30. Advanced Work in Anatomy. Opportunity for advanced study in the field of human and comparative anatomy, gross and microscopic, in embryology and experimental morphology, and in laboratory technique is offered to properly qualified students. This work will be done under the direction of various members of the staff.

Primarily for Graduates

35. Investigation under Direction. To qualified students the department is prepared to offer problems for investigation and training in methods of research. Special arrangements for this work may be made with the individual members of the staff.

40. Independent Investigation. The department will welcome independent investigators who wish to make use of its facilities for conducting research in anatomy.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR ERLANGER, ASSISTANT PROFESSOR BRADLEY, AND DR. BLACKMAN.

For Undergraduates and Graduates

The following courses are designed especially for students intending to study medicine or to teach the biological sciences. Course 4 is open only to those who have had a previous train-

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ing in General and Organic Chemistry (courses 1 and 20), Physics (course 1) and General Biology (course 1). As a preparation for course 5, Comparative Anatomy, Histology, and Neurology (Anatomy 5, 10 and 26), and course 4 are required.

4. Physiological Chemistry. (a) Lectures. These give a brief summary of the entire province of physiological chemistry. (b) Laboratory course. This includes the chemistry of various substances, such as proteids, which are usually not familiar to the student of pure chemistry, a chemical study of most of the tissues and fluids of the body, and a study of those physiological chemical processes that can be closely imitated outside the body, special emphasis being laid on such enzymic processes as salivary, pancreatic and gastric digestions. The course also includes a quantitative analysis of urine (normal and pathological), milk, gastric juice, stomach washings and foods, and an examination of the faeces with special reference to putrefactive processes. (c) Conferences are held for the discussion of the laboratory work, and for the consideration of the progress and needs of the students. *Second semester; M., Tu., W., F., at* 10 *to* 1. *Four unit-hours.* Assistant Professor BRADLEY.

5. Physiology. The following subjects are considered: Muscle and nerve, central nervous system, special senses, blood, circulation, respiration, secretion, digestion and nutrition. (a) Lectures. (1) Preliminary Course. *May 1 to the end of the year; M., Tu., W., Th., F., at* 12. *Two unit-hours.* (2) Continued course. *First semester; M., Tu., W., Th., F., at* 12. *Five unit-hours.* (b) Laboratory work. The preliminary course of lectures must precede, and the continued course of lectures be taken in conjunction with or precede the laboratory work. *First semester until the Christmas recess; twice weekly, at* 2 *to* 5. *Two unit-hours.* Professors ERLANGER and Dr. BLACKMAN.

Primarily for Graduates

8. Advanced Laboratory Course in Physiology. This course is designed primarily for teachers of animal physiology, and consists mainly of experiments demonstrated in course 5. The time or amount of work is not limited, except that assistance must be arranged for by definite engagements.

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The instruction is given individually and may involve undertaking a definite investigation. Professor ERLANGER.

10. Advanced Laboratory Course in Physiological Chemistry. This course corresponds to course 8.

12. Journal Club. Advanced students are expected to report from time to time upon papers of physiological and physiological-chemical interest that may appear in the current journals. *One hour a week throughout the year.*

BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL, ASSOCIATE PROFESSOR FROST, ASSISTANT PROFESSOR HASTINGS, DR. FULLER, MR. SMITH, AND MR. NELSON.

For students desiring a general laboratory course in Bacteriology, course 1 should be taken. Chemistry and General Biology should precede this work. On the basis of this general course, the student is then able to take up special work in Medical Bacteriology. Course 1 is a prerequisite for major work in Medical Bacteriology.

Primarily for Undergraduates

1. General Bacteriology. A general survey of the entire field of bacteriology from the biological point of view. *First semester;* lectures *M.*, *W.*, *at* 11; laboratory work, *six hours a week.* Associate Professor FROST and Mr. NELSON.

2. Medical Bacteriology. This course, which is especially designed for medical students, considers the bacteria that are especially concerned in the production of disease processes. Course 1 is a prerequisite. *First semester;* lectures, *M.*, *W.*, *F.*, *at* 11; and laboratory work. Professor RAVENEL, Associate Professor FROST, and Mr. SMITH.

7. General Hygiene. *First semester; one hour.* Associate Professor FROST.

6. Communicable Diseases. *Second semester; one hour.* Associate Professor FROST.

8. Biology of Water Supplies. This course includes a study of the elementary principles and technique of bacteriology, the hygiene of water-borne diseases, the testing of water purification plants, and the important microscopical organisms. Lectures and laboratory work. *Second semester; three hours credit.* Required of juniors in Sanitary Engineering. Dr. FULLER.

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3. Thesis work in Bacteriology. Professor RAVENEL and Associate Professor FROST.

For Undergraduates and Graduates

4. Topical Work in Bacteriology. Laboratory work and conferences. Professor RAVENEL and Associate Professor FROST.

11. Immunity. Includes a study of the phenomena and theories of immunity in general as well as the various infectious diseases. Lectures and reports. Open only to advanced students. *First semester; one hour.* Associate Professor FROST.

11a. Laboratory Course in Immunity. This is an experimental course and includes a study of cytotoxins, agglutinins, precipitins, toxins, antitoxins, opsonins, etc. *First semester; two hours, or more.* Associate Professor FROST.

12. Pathogenic Protozoa. This includes a study of the most important of the protozoa known to cause human and animal diseases. Open only to advanced students. Lectures, demonstrations and reports. *Second semester; one hour.* Associate Professor FROST.

5. Research work in Bacteriology. Opportunity is offered for work in original investigation, which may be arranged for on consultation. A reading knowledge of French and German is necessary. Professor RAVENEL and Associate Professor FROST.

18. Milk Hygiene. A course of lectures and laboratory work dealing with the hygienic aspects of city milk supplies. The methods used in municipal laboratories for the quantitative and qualitative bacteriological examination of milk are studied. The examination of milk for leucocytes. Study of municipal regulations. *First semester; five unit-hours.* Given in the College of Agriculture. Assistant Professor HASTINGS.

19. Bacteriology of Animal Diseases. Laboratory work, assigned literature and conferences. *Second semester; three to five unit-hours.* Given in the College of Agriculture. Professor RAVENEL and Mr. SMITH.

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PATHOLOGY, PHARMACOLOGY, TOXICOLOGY

Announcement concerning the courses in these departments will be made later. A course in Pathology in combination with the course in Medical Bacteriology will take up the greater part of the morning sessions during the second year of the medical curriculum. The course in Pharmacology and Toxicology will be given during the second semester of the second year.

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THE SCHOOL OF MUSIC

STAFF OF INSTRUCTION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
ROSSETTER G. COLE, Ph. B., Director. Professor of Music.

MRS. ELIZABETH KEELEY ANDERSON, Harp.
FRANK C. BACH, Mandolin, Guitar and Banjo.
ADA BIRD, Piano.
MRS. MARTHA E. BRAND, Guitar and Banjo.
ELIAS A. BREDIN, Organ and Voice.
ELIZABETH BUEHLER, B. A., Piano.
MRS. WINIFRED C. CURTIS, Piano.
ADELAIDE FORESMAN, Voice.
ABIGAIL L. FORWARD, Sight-Singing.
MARY MAUD FOWLER, Piano.
JEANNE L'HOMMEDIEU, Voice.
WILLY L. JAFFÉ, Violin.
HERMAN E. OWEN, Public School Music.
FLETCHER A. PARKER, Emeritus Professor of Music.
ALICE S. REGAN, Piano.
MRS. INGA SANDBERG, Piano.

General Announcement

It is the purpose of the School of Music to furnish superior facilities for the study of music in all of its departments, theoretical or practical. Instruction is offered in piano, organ, violin, harp, singing, mandolin, guitar, and banjo, and in musical theory, musical history, choral practice, harmony, counterpoint, composition, and methods in public school music. In the study of piano or singing (voice culture) instruction is given by means of private or individual lessons, or should a sufficient number of students desire it, classes limited to three will be organized. In the study of other instruments, private lessons only are employed.

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In the theoretical studies it is recommended that students join the University classes.

To meet the convenience of students residing either permanently or temporarily in distant parts of the city, an office and studios are provided in the Kroncke Building, in addition to those in Assembly Hall at the University. Applications for lessons may be made at either place, the lessons being given where it is found best to suit the convenience of instructor and student.

The lessons vary in length and in number per week, for the purpose of adequately meeting the wants of all classes of students, from those who take a large amount of work in other departments of the University to those who devote themselves especially to the study of music with little or no collateral work. In like manner the fees for special instruction vary according to the length and frequency of lessons. A schedule of fees may be found under Tuition (see Index.)

It should be observed that special instruction in vocal or instrumental music of any kind may be taken by students not otherwise connected with the University, and that such students are not required to pay the incidental fee required of all University students.

The general classes in harmony, counterpoint, history of music, musical composition, general methods in public school music, conducting, principles of music education, musical appreciation, masterpieces of music, and choral music, may be taken as electives by students of the College of Letters and Science, freshmen excepted, and credit will be given on the same basis as for other collegiate studies. These classes are likewise open to students of the other colleges and schools of the University without extra fees.

Students of the School of Music not otherwise connected with the University, may be admitted to these classes on the payment of the usual incidental fee charged to students of the College of Letters and Science ($10 per semester). The tuition fee which is required for students in the University who are not residents of the state is not required of non-resident students who are registered only in the School of Music.

A statement of courses and classes follows. For a statement of credits, see Index under Music.

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COURSES OF THE SCHOOL

There are two general courses in the School of Music, viz.: (1) The collegiate course, and (2) the academic course.

I. The Collegiate Course

In this course the requirements for admission are the same as for the general courses in the College of Letters and Science, or for adult special students, together with such proficiency in some department of music, as is stated in connection with the outlined courses of study. A graduate's diploma will be granted on the satisfactory completion of this course. While in general four years of study are required, this period may be lengthened or shortened according to the student's ability. The following theoretical courses are also required: musical theory, harmony (two years), history of music and musical appreciation.

II. The Academic Course

This course is open to persons not members of the University, and also to University students who do not desire to enter the collegiate course leading to graduation. Students of this course may, however, be admitted to the musical classes of the University on the payment of the usual incidental fees charged to students of the College of Letters and Science ($10 a semester), but will not be considered candidates for graduation or for a diploma. If, however, at any time such students should be transferred to the collegiate course, they will, on satisfying other conditions, receive credit for studies previously taken. A certificate of excellence will be granted to worthy students of this course on examination, after not less than three years of study.

THE COURSES OF STUDY

I. COLLEGIATE COURSE

PIANO

Applicants for admission will be expected to play music of the grade of Mozart's *Sonata in D major No.* 3, Peters Edition; Loeschhorn, *Op.* 52 and *Op.* 66; Bach, *Little Preludes.*

FIRST YEAR

Heller, *Op.* 46 and 45; Czerny, *Studies in Velocity;* Jensen, *Op.* 32; Bach, *Inventions* and *English Suites.*

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SECOND YEAR

Bach, *Well-Tempered Clavichord;* Kullak, *Octave School,* Books I and II; Cramer, *Studies;* Czerny, *Fingerfertigkeit;* Marmontel, *Mecanismé.*

THIRD YEAR

Tausig, *Studies;* Kullak, *Book III; Gradus ad Parnassum,* 1st half; Czerny, *Toccata;* Chopin, *Preludes.*

FOURTH YEAR

Moscheles, *Op.* 70; *Gradus ad Parnassum,* 2nd half; Chopin. *Etudes.*

It is not supposed that a rigid course can be given which will meet the requirements of all students, but the foregoing outline represents, in a general way, the character of each year's technical work. Studies especially are named, because they indicate grade and character of requirements more clearly than can be done otherwise. On the other hand, these studies are supplemented by ample selections from classic and modern composers, for the interpretative qualities in public performance.

Upon graduation students will be expected to play acceptably in recital selections of the grade of *Chromatic Fantasie and Fugue* by Bach, *Sonata, Op.* 90, by Beethoven, *Concerto in G minor* (one movement) by Mendelssohn, etc.

ORGAN

No previous knowledge of organ playing is required. But the student must be well grounded in piano playing, must possess a correct technique, and be able to read plain four-part music.

The course of study is continuous, beginning with Stainer's *Organ School* or Whiting's *First Six Months on the Organ,* and following with the larger works of Rink and Best, supplemented by special studies by Thayer, Buck, Ritter, Schneider, Volckmar, and others. Selections from Bach's organ works, Mendelssohn's Sonatas and the compositions of modern composers are used.

Careful training is given in playing church music and voluntaries, the use of stops, and the mechanism of the instrument.

VOICE

The student must be able to read plain music and must have had an amount of training equal to the first half of Concone's *Fifty Lessons,* with the usual technical study for the same period.

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First Year: Tone placing, breathing, and phrasing; ballad singing and the sostenuto style; technical and other studies of the grade of Bonaldi's *Six Vocalises*, Sieber's *Vocalises;* Marchesi's *Exercises, Op.* 21, Book 1.

Second Year: Concone's *Fifteen Vocalises;* Schubert's *Manual of Vocal Technique;* Marchesi's *Vocalises, Op.* 21, Book II; German and French songs, and easy oratorio and operatic arias and recitatives.

Third Year: Schubert's *Special Studies;* Bordogni's *Bravura Studies*, and operatic and oratorio selections.

Fourth Year: Studies in bravura by Lamperti and Bordogni. Cadenzas and larger forms of execution.

On graduation the student will be expected to sing acceptably selections (according to voice and school) from such songs and arias as: "He Was Despised," "Angels Ever Bright and Fair," "I Know That My Redeemer Liveth," and "Thou Shalt Break Them," by Handel; "With Verdure Clad," "Rolling in Foaming Billows," and "In Native Worth," by Haydn; "If With All Your Hearts," "It is Enough," and "O Rest in the Lord," by Mendelssohn; "Infelice," by Verdi; "Roberto, tu che Adoro," by Meyerbeer; "Una Voce," and "Pro Peccatis," by Rossini.

VIOLIN

First Year: Methods—Hermann and Schubert, *Scale Studies. Etudes* by Kayser, Hofmann and Wohlfahrt. Easy melodious solos and duets.

Second Year: Methods—Hermann, *Violin School, Part II*, and Ries, *Violin School, Part II. Etudes* by Kayser, Mazas, Eberhardt. Solos and duets.

Third Year: Schradieck, *School of Violin Technic. Etudes* by Mazas, Dont, Kreutzer and Fiorillo. Concertos by Viotti, Rhode and Kreutzer. Italian sonatas and other solo pieces.

THEORETICAL STUDIES

MUSICAL THEORY

A one year course, twice a week, in the general theory of music, including notation, scale construction, intervals, distinctions of rhythm, musical terminology, etc., combined with a practical study of sight reading and choral singing.

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This course is especially recommended to all students, whether of instrumental or vocal music, as furnishing a substantial foundation for all other work; it will also be found useful for those who contemplate teaching in either public or private schools.

HARMONY AND COUNTERPOINT*

The requirements for admission to the course in harmony are: a knowledge of musical notation, a correct ear, ability to read simple melodies at sight, and to play a simple hymn-tune.

First Year: Elementary Harmony. Study of the nature, individuality, and unity of melody, harmony and rhythm as elements of music expression. Development of ability to recognize in aural analysis all the diatonic harmonies in both major and minor modes, and to correctly employ the same in the harmonization of melodies, both original and given. Non-harmonic elements.

Second Year: Advanced Harmony. Four-part writing. Chromatic harmonies and compound chords in major and minor modes. Modulation. Detailed harmonic analysis of Schumann, Mendelssohn, etc.

Third Year: Simple Counterpoint, strict and free. Double counterpoint, canon and fugue.

HISTORY OF MUSIC

A course of lectures twice a week, extending throughout the year. In the first semester the lectures give a general survey of music from before the Christian era down to the eighteenth century. The second semester is devoted to the eighteenth and nineteenth centuries.

MUSICAL COMPOSITION.

A year course, twice a week. Two years of harmony, or an equivalent, are required as preparation.

PUBLIC SCHOOL MUSIC

General Course for Grade and High School Teachers

This course is designed for teachers who expect to combine the teaching of other branches with the subject of music, in

*The courses in counterpoint, etc., and in musical composition are inserted here under their proper headings, because they are frequently taken as electives by University students; but they represent graduate work for students of the School of Music.

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grade and high schools. The class will meet twice a week throughout the year. The work consists of a study of the technical points to be presented in the school and the practice of songs suitable for school use. This course will be of value to those who expect to teach in the public schools or who wish to conduct high school choruses. Students electing this course should take at least one semester's work in conducting. The course is open to University students without an additional fee. Persons not in the University will be admitted on the payment of the incidental fee of $10.

Course for Supervisors

This course is designed for those who wish to fit themselves for the special work of supervisor of music in public schools. It includes the following subjects:

Rote songs and their application to school work. Elements of music as presented in the grades, and the best methods of teaching shown. Study of the child voice. Sight-singing and ear-training. Practice in teaching. Elementary harmony and musical form as presented in the high school. The problems of the supervisor and how to meet them. Study and interpretation of songs. Art of conducting. Practice in conducting.

The class meets three times a week throughout the year, although a student who has had a sufficient previous training can complete the course in one semester. Certificates are granted to those who complete the course satisfactorily. This course involves a special fee. See Index for Tuition, under Music.

II. ACADEMIC COURSE

There are no requirements for entrance. Students are received and graded according to ability and amount of previous study. This course in all departments leads up to and overlaps the collegiate course. Students after reaching the proper stage of preparation may be transferred to the collegiate course, or may remain in the academic course, the work of the last three years being identical in both courses. But no certificate of excellence will be issued to any student who is not thoroughly fitted to enter the third year of the collegiate course.

GUITAR, BANJO, AND MANDOLIN

In response to the demand growing out of the popularity of these attractive instruments, the School of Music provides ample and excellent opportunities for their study. Special attention is

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given to expression, technique, and proper fingering. In general correct methods leading to the highest efficiency are employed.

Text-books for Guitar: Carcassi, Sor, Ferranti, Holland, and Langley.

Text-books for Banjo: Dobson, Stewart, Henning, and others.

Text-books for Mandolin: Wm. C. Stahl, *Books I, II, III;* Progressive Studies by Lansing, Munier, Branzoli, supplemented by solo selections from the best writers for this instrument.

ORCHESTRA

The University orchestra is composed of about fifty of the students of the University. The purpose of the organization is the study of the larger classical forms. It is open to all students who have sufficient knowledge of any orchestral instruments to pursue the work profitably. After two semesters' connection with the orchestra a student may receive a credit of one-fifth for each of the two following semesters.

BAND

A military band has been organized, open to all students. Two rehearsals are held each week. Freshmen and sophomores belonging to the band receive credit for military drill.

CHORAL UNION

The Choral Union is an organization of students of the University and citizens of Madison for the purpose of studying and adequately presenting in public performance the oratorios and larger choral works of standard composers. Very successful performances of Handel's *Messiah* and *Judas Maccabaeus*, Haydn's *Creation*, and Mendelssohn's *Elijah* and *St. Paul* have been given, and other works of similar magnitude will follow. Occasional concerts of part-songs and glees are given.

Applicants for membership must be able to read simple music at sight. The rehearsals are held weekly from October to May. The annual membership fee is one dollar.

RECITALS AND CONCERTS

Student recitals, free to all students and open to all others by invitation, are held at frequent intervals during the collegiate year. Recitals and concerts by eminent artists are given from time to time at a low price to students of the School of Music.

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An incidental fee of fifty cents each semester (payable at the time of registration) is charged all students of the School of Music, for the purpose of establishing a fund, which, in addition to single admission tickets, will defray the expenses of a series of six Artists' Recitals (three each semester). The payment of this fee entitles students to attend not only each recital but also the analytical and explanatory lecture given by the director before each recital.

TUITION

The school year is divided into two semesters of approximately eighteen weeks each, but the tuition for musical instruction may be paid by the half-semester, if desired.

Half-Semester of Nine Weeks

Two Lessons a Week

	½-hour lessons	¾-hour lessons	Hour lessons
PIANO			
Miss Bird	$18.00	$27.00	$36.00
Miss Regan	18.00	27.00	36.00
Mrs. Sandberg	18.00	27.00	36.00
Mrs. Curtis	15.00	22.00	30.00
Miss Fowler	15.00	22.00	30.00
Miss Buehler	12.00	18.00	24.00
VOICE			
Miss l'Hommedieu	$25.00		
Miss Foresman	18.00	$27.00	
Mr. Bredin	16.00	24.00	
SIGHT-SINGING			
Miss Forward	$10.00	$15.00	
ORGAN			
Mr. Bredin	$15.00	$22.00	$30.00
MANDOLIN, GUITAR, BANJO, HARP			
Mrs. Brand, Mr. Bach, Mrs. Anderson	$ 9.00	$13.50	$18.00

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One Lesson a Week

PIANO

	½-hour lessons	¾-hour lessons	Hour lessons
Miss Bird	$10.00	$15.00	$20.00
Miss Regan	10.00	15.00	20.00
Mrs. Sandberg	10.00	15.00	20.00
Mrs. Curtis	8.00	12.00	16.00
Miss Fowler	8.00	12.00	16.00
Miss Buehler	7.00	10.50	14.00

VOICE

Miss l'Hommedieu	$13.50		
Miss Foresman	10.00	$15.00	
Mr. Bredin	9.00	13.50	

SIGHT-SINGING

Miss Forward	$ 6.00	$ 9.00	$12.00

ORGAN

Mr. Bredin	$ 8.00	$12.00	$16.00

VIOLIN

Mr. Jaffé	$13.50

MANDOLIN, GUITAR, BANJO, HARP

Mrs. Brand, Mr. Bach, Mrs. Anderson	$ 4.50	$ 6.75	$ 9.00

OTHER EXPENSES

Sight-Singing classes, two hour-lessons each week, per semester	$5.00
Piano Practice, each hour daily, per semester	3.00
Organ practice, each hour daily, per half-semester	4.50
Artists' Recital fee, per semester	.50
Diploma fee	5.00

PUBLIC SCHOOL MUSIC

Course for supervisors of public school music, per semester,	$20.00
Private lessons in public school music, each	2.00
Public school certificate	1.00

Theoretical studies may be taken in the University classes, and

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those who are not otherwise connected with the University are expected to pay the incidental fee of the College of Letters and Science, which is $10.00 a semester. The fee, however, is not required of those taking only individual lessons in singing, or on some instrument.

GENERAL INFORMATION

Students are not received for less than a half-semester.

All tuition fees must be paid in advance, by the half-semester or semester.

No student is entitled to lessons until tuition has been paid.

No deduction can be made for absence from lessons, except for long continued illness, in which case the School of Music will share the loss equally with the student.

No student is expected to take part in any public entertainment without the consent of his teacher and the Director.

Students who, by reason of deficient musicial ability, neglect of study, or any other valid reason, fail to make satisfactory progress, may be dropped from the classes.

The School of Music calendar is the same as that of the University.

Pianos may be rented from local dealers at from three to six dollars a month.

Students may enter at any time.

The office of the Director in Assembly Hall at the University will be open for several days before the opening of each semester for the reception of pupils and assignment of lessons. After the opening of the University the Director may be found daily at Assembly Hall, from 10 to 11, on Monday, Wednesday and Friday, and from 3 to 4 on Tuesday and Thursday.

The regular office hours of the Secretaries during the college year are: at Assembly Hall, 10 to 12 A. M. and 3 to 4 P. M.; at the Kroncke Building, 10 to 11 A. M. and 4 to 5 P. M., daily except Saturday.

For further information, address

ROSSETTER G. COLE, Director, or
MISS BESSIE G. BRAND, Secretary,
Madison, Wis.

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THE WASHBURN OBSERVATORY

STAFF

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
GEORGE C. COMSTOCK, Sc. D., LL. D., Director. Professor of Astronomy.
ALBERT S. FLINT, M. A., Astronomer.

ELIZABETH MCKEE, Clerk.
ANDREW THOMA, Student Assistant.

The Washburn Observatory was established in the year 1878 through the munificence of the late Gov. C. C. Washburn. Although its obligations and opportunities as a branch of a teaching university have not been ignored, the energies of its staff from the beginning have been directed mainly to astronomical research. Among the lines of research that have been cultivated may be specified the measurement of the positions and motions of the heavenly bodies, the discovery and measurement of double stars, the investigation of variable stars, the study of changes of latitude and the amount and character of the atmospheric refraction, the determination of the amount of the aberration of light, problems of stellar color, proper motions of faint stars, and a systematic investigation of the parallaxes of all accessible stars which have large proper motions.

The principal instruments of the observatory are:

An equatorially-mounted telescope of 15½ inches aperature, constructed by Alvan Clark & Sons, and provided with graduated circles, driving clock, a filar micrometer, double image micrometer by Steinheil, a spectroscope, astro-photometer, and a very complete set of eyepieces. A meridian circle, by A. Repsold & Sons, of Hamburg, with collimators, transit micrometer, and the usual accessories of such an instrument. The objective of the instrument was made by the Clarks, and has an aperture of 4.8 inches and a focal length of 58 inches. The circle is graduated to 2 minutes of arc. For several years this instrument has been employed

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for an extensive series of determinations of stellar parallax. There are also a sidereal clock by Höhwü, of Amsterdam, two mean time clocks by Howard, of Boston, all excellent time-pieces, and a chronograph, by Fauth & Co., of Washington.

In the Student's Observatory are mounted a six-inch equatorial telescope, by Alvan Clark & Sons, and a transit instrument of the broken telescope type, by Bamberg. These instruments, while primarily intended for instruction, are well adapted to and are employed for certain classes of original work. In particular, the equatorial telescope has been provided with reflecting prisms (Loewy), and employed as one of the principal instruments of the Observatory in an investigation of the refraction and the constant of aberration; and the Bamberg instrument is used for latitude determinations by the Talcott method and for the time service of the Observatory. The Observatory also possesses a considerable number of subsidiary instruments, such as portable telescopes, spectroscopes, photometers, chronometers, sextants, an engineer's transit, an altazimuth, a universal instrument of the German type, a personal equation machine, a spherometer caliper. seismoscopes, photographic apparatus, and a complete set of meteorological instruments.

The Woodman Astronomical Library, established in connection with the Observatory, and supported from the income of a fund given by the late Cyrus Woodman, Esq., possesses a large and valuable collection of works upon astronomy and kindred subjects.

By provision of law the results of important investigations conducted at the Washburn Observatory are published by the State, and under this provision eleven volumes, representing the more important work done at the Observatory, have been issued. Vol. XII is now in press.

Students of sufficient technical attainments are admitted to the Observatory and take part in the investigations in progress. Meritorious original work of such students may be included in the Publications of the Observatory, or in the Bulletins of the University. For the courses of instruction in astronomy see Index, under Astronomy.

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UNIVERSITY EXTENSION DIVISION

STAFF

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
LOUIS E. REBER, M. S., Director of University Extension.
W. H. LIGHTY, Ph. B., Secretary of Correspondence Study.
FRANK A. HUTCHINS, Secretary, Department of Debating and Public Discussion.
E. A. BOYER, Field Organizer.
JULIA A. FLISCH, Assistant and Librarian.

T. S. ADAMS, Ph. D., Associate Professor of Political Economy.
KATHERINE ALLEN, Ph. D., Instructor in Latin.
E. D. ANGELL, Assistant Professor of Physical Training.
J. T. ATWOOD, B. S., Instructor in Experimental Engineering.
ARTHUR BEATTY, Ph. D., Assistant Professor of English.
ELIOT BLACKWELDER, A. B., Assistant Professor of Geology.
W. G. BLEYER, Ph. D., Assistant Professor of English.
D. E. BURCHELL, A. M., Professor of Business Administration.
C. F. BURGESS, E. E., Professor of Applied Electrochemistry.
W. B. CAIRNS, Ph. D., Assistant Professor of American Literature.
W. J. CHASE, A. M., Assistant in History.
VICTOR COFFIN, Ph. D., Assistant Professor of European History.
J. R. COMMONS, A. M., Professor of Political Economy.
G. H. COX, B. S., Instructor in Geology.
R. H. DENNISTON, Ph. D., Assistant Professor of Botany.
T. H. DICKINSON, A. M., Assistant Professor of English.
E. P. R. DUVAL, A. B., Instructor in Mathematics.
E. L. EATON, D. D., Instructor in Astronomy.
E. C. ELLIOTT, Ph. D., Professor of Education.
J. C. ELSOM, M. D., Professor of Physical Training and Director of the Gymnasium.
R. T. ELY, Ph. D., LL. D., Professor of Political Economy.
C. R. FISH, Ph. D., Associate Professor of American History.
J. C. FREEMAN, LL. D., Professor of English Literature.

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W. D. Frost, Ph. D., Associate Professor of Bacteriology.
S. W. Gilman, LL. B., Assistant Professor of Business Administration.
S. H. Goodnight, Ph. D., Assistant Professor of German.
E. M. Griffith, Lecturer on Forestry. State Forester.
N. C. Grimes, A. B., Instructor in Mathematics.
M. R. Hammer, B. S., Instructor in Drawing.
J. F. Haussmann, Ph. D., Instructor in German.
L. R. Herrick, B. S., Instructor in Romance Languages.
R. H. Hess, M. S., Assistant in Political Economy.
A. R. Hohlfeld, Ph. D., Professor of German.
W. O. Hotchkiss, B. S., Instructor in Highway Construction.
F. W. Huels, B. S., Instructor in Experimental Engineering.
Caroline Hunt, A. B., Professor of Home Economics.
Ellen A. Huntington, A. B., Instructor in Home Economics.
Joseph Jastrow, Ph. D., Professor of Psychology.
Louis Kahlenberg, Ph. D., Professor of Physical Chemistry.
H. E. Legler, Secretary of the Wisconsin Free Library Commission.
C. K. Leith, Ph. D., Professor of Geology.
Victor Lenher, Ph. D., Professor of Chemistry.
R. L. Lyman, A. B., Assistant Professor of Rhetoric and Oratory.
Charles McCarthy, Ph. D., Lecturer in Political Science.
L. G. McConachie, Ph. D., Instructor in Political Science.
J. G. D. Mack, M. E., Professor of Machine Design.
Lawrence Martin, A. M., Instructor in Geology.
A. S. Mayhew, Assistant Professor of Physical Training.
A. V. Millar, M. S., Instructor in Drawing.
J. N. Norwood, Ph. B., Instructor in American History.
J. E. Olson, B. L., Professor of Scandinavian Languages and Literature.
M. V. O'Shea, B. L., Professor of the Science and Art of Education.
M. C. Otto, A. B., Instructor in Philosophy.
H. E. Owen, Instructor in Music.
W. D. Pence, C. E., Professor of Railway Engineering.
J. D. Phillips, B. S., Professor of Drawing.
U. B. Phillips, Ph. D., Assistant Professor of American History.
A. M. Pitman, Ph. D., Instructor in Latin.
Eduard Prokosch, Ph. D., Instructor in German.
J. F. A. Pyre, Ph. D., Assistant Professor of English Literature.
P. S. Reinsch, Ph. D., Professor of Political Science.

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A. W. RICHTER, M. E., Professor of Experimental Engineering.

E. C. ROEDDER, Ph. D., Assistant Professor of German Philology.

E. A. ROSS, Ph. D., Professor of Sociology.

H. L. RUSSELL, Ph. D., Dean of the College of Agriculture.

M. A. SCHAFFNER, Ph. D., Instructor in Political Science.

E. B. SCHLATTER, A. M., Instructor in Romance Languages.

E. P. SANDSTEN, Ph. D., Professor of Horticulture.

W. A. SCOTT, Ph. D., Director of the Course in Commerce. Professor of Political Economy.

F. C. SHARP, Ph. D., Professor of Philosophy.

E. M. SHEALY, B. S., Instructor in Steam Engineering.

GRANT SHOWERMAN, Ph. D., Assistant Professor of Latin.

J. W. SHUSTER, B. S., Assistant Professor of Electrical Engineering.

M. S. SLAUGHTER, Ph. D., Professor of Latin.

C. F. SMITH, Ph. D., Professor of Greek and Classical Philology.

E. R. SMITH, A. B., Instructor in Mathematics.

KENNETH A. SMITH, A. B., B. S., Assistant Professor of Mechanical Engineering.

EDWARD STEIDTMANN, A. M., Assistant in Mineralogy.

H. L. SUMNER, A. B., Instructor in Political Economy.

H. C. TAYLOR, Ph. D., Associate Professor of Political Economy.

H. J. THORKELSON, M. E., Assistant Professor of Steam Engineering.

R. G. THWAITES, LL. D., Secretary of the Wisconsin Historical Society.

F. J. TURNER, Ph. D., Professor of American History.

F. E. TURNEAURE, C. E., Dr. Eng., Dean of the College of Engineering. Professor of Engineering.

E. K. J. H. VOSS, Professor of German Philology.

GEORGE WAGNER, M. A., Instructor in Zoology.

WILLIAM E. WICKENDEN, B. S., Instructor in Electrical Engineering.

A. N. WINCHELL, Ph. D., Assistant Professor of Mineralogy and Petrology.

H. C. WOLFF, M. S., Instructor in Mathematics.

E. C. WOOLLEY, Ph. D., Instructor in English.

Note.—In addition to the regular members of the University Extension staff, other members of the University faculty are willing to lend their services to the work that the University is carrying on throughout the State. As, however, University duties will not admit of their accepting all invitations, it will be necessary to consult with them in each case. Correspondence will be gladly received at the

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University Extension office regarding lectures to be given by these members of the Faculty, as well as by those on the University Extension staff.

University Aims

It is the aim of the University to lend its aid to all educational activities of any kind which are being carried on in the State. It regards the fulfillment of this aim as one of its greatest obligations towards the people of the commonwealth, and one in the pursuit of which it has always been active. Through its system of high school inspection, and its intimate relation with the colleges and Normal schools, and with the teachers' conventions, it has helped to systematize the educational work of the State, and raise it to a higher level of efficiency.

Help in Self Education

Most of this work, however, has been carried on among those who have the education of others in charge. There is another great class to which the University wishes to extend its stimulus and guidance; namely, those persons who are carrying on their own education. They have been aided in their efforts, to some extent, by short courses of lectures and demonstrations, given in their local centers as well as at the University. In fact, along certain lines, this Extension work of the University has won for it a national reputation. This is true particularly of the work of the Farmers' Institutes, which have been conducted throughout the State many years by the College of Agriculture. Recently this Extension work abroad has been supplemented by Extension work at home, by the establishment of a Farmers' Course in Agriculture, which is in session at the University each year during the first two weeks of February. The programmes of the Farmers' Course as well as those of the Farmers' Institute are of an extremely practical character, and this work has bestowed upon the State benefits which, on its agricultural side, are incalculable.

In connection with the Farmers' Course in Agriculture, another branch of University extension at home, called the Housekeepers' Conference, is carried on at the University under the auspices of the department of Home Economics. This work is likewise of a practical character, consisting of talks and demonstrations on the preparation of food, sanitation, the judging of textiles for household use, etc.

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The Extension work along other lines of educational activity has not as yet been so well systematized, but even here much has been done.

The University, however, is not satisfied with this limited success, and aims, by systematizing the educational work among adults through its University Extension office, to widen its sphere of influence. It realizes the importance of such work for the future well-being of our country, and for the maintenance of our democratic institutions, and desires to stimulate it in every possible way. The nature of the assistance which it can offer will vary, of course, with the nature of the demand. It will be its aim through the University Extension office to meet each demand in the way best fitted to obtain the desired results.

The University Extension Division is fortunate in having in its work the coöperation of the Wisconsin Free Library Commission, the secretary of which is a member of its staff of lecturers. This Commission is in intimate contact with the smaller communities of the State, which it serves in many ways, especially by loaning collections of books and periodicals to such as have no adequate library facilities of their own.

Lecture Courses

A list of lecture courses offered by the University Extension Division is given below, together with a statement of the expenses involved. These courses consist, usually, of six lectures, given by the same lecturer, though arrangements can be made for fewer or even for single lectures. It is also possible to arrange for courses of six lectures, each given by a different lecturer, and treating of different subjects. Specimen courses of this kind are given in the University Extension announcement, which will be sent upon application to the University Extension office.

Where courses are arranged for by public school boards, it is possible, under the act of the Wisconsin legislature of 1901, to have them maintained at public expense. By another act, passed by the legislature in 1905, trustees of public libraries are permitted to give the use of the auditoriums in their buildings for public lectures.

In order to encourage the establishment of such courses of lectures the Extension Division offers to official boards desiring to inaugurate courses one or two lectures free of cost beyond the

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traveling expenses of the lecturer. With this assistance, it is believed that in many communities a series of free lectures may be arranged by drawing from local talent for a part or all of the remaining lectures.

Women's Clubs

In addition to providing lecturers, the University Extension Division will aid the Women's Clubs of Wisconsin as much as possible in planning their work for the year, or for several years in advance. It will be glad to supply topics for study, as well as outlines of these topics, suggesting the best way of taking them up, and likewise suggesting the best books and periodicals bearing upon them. In many cases small collections of these books and periodicals can be borrowed for a considerable period by applying to the Wisconsin Free Library Commission.

Study Clubs

The University Extension Division is ready to assist study clubs in every possible way. From time to time, the officers will visit the different parts of the State and aid the local centers in organizing or perfecting the organization of such clubs. When organized, the University Extension Division will be of further assistance either through the direct contact of some member of its staff with the class, or through supervision of the work of the class, or through a combination of both the foregoing methods. In the first case, the class will be in charge of a member of the Extension staff, who will meet with it weekly or bi-weekly for a lecture or demonstration, the work to extend over a period of six or twelve weeks. In the second case, the class will be in charge of a competent University graduate residing in the local center, who has submitted a satisfactory outline of the proposed work to the Secretary of University Extension. In the third case, the local instructor will meet with the class once or twice a week, and these meetings will be supplemented by a weekly or bi-weekly meeting with a member of the Extension staff, for a lecture or demonstration.

Home Study Group System

Clubs can be formed to pursue the study of almost any subject and to meet the demands of almost any group or organization of persons. For example, classes for grammar school and high school teachers, to take up some branch of their class work;

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classes for mechanics, to take up mechanical drawing, steam, structural, or railway engineering, etc; classes for business men, accountants, and bookkeepers, bank clerks, etc., to take up the study of business administration, purchasing, advertising, credit business, transportation, public finance, etc.; classes for members of labor organizations, to study some specific problem connected with their trade or industry, or some problem of general interest, as factory legislation, economic history and theory, etc.

The work of these clubs can be supplemented by work at the Summer School of the College of Letters and Science, or the Summer School for Artisans, conducted by the College of Engineering. These sessions begin immediately after the close of the university year and continue for six weeks.

Where the work of the study club is of a character approved by the Faculty of the University, a certificate will be awarded to the members passing a satisfactory examination, which will have a recognized value on the University records, and which will be credited accordingly, should the holder ever study at the University.

Debating Societies

The University Extension Division, in coöperation with the Legislative Reference Department of the Free Library Commission and the Department of Rhetoric and Oratory, will supply debating societies in any part of the State with subjects for discussion and references upon them. As far as possible, these will be supplemented by the loan of material for the study of such topics. In any event, where a society, six o'clock club, advancement association, or any body of citizens is engaged in serious study or investigation, or where county, village, or town boards are making investigations of public moment, arrangements can be made with the University Extension Division for coöperation or for lectures.

An Extension Bulletin is issued giving many valuable suggestions to debating clubs and bibliographies for the study of a large number of subjects of public interest most frequently discussed. Members of the Extension staff will give direct help in organizing societies or reorganizing old ones, and will, when possible, visit such societies.

Whenever public interest has been aroused on some subject of vital interest, arrangements may be made for one or more lectures by members of the Extension staff.

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Teachers' Conventions and Institutes

The University Extension Division will provide speakers for these meetings as far as the regular work of the University will allow.

Commencement Addresses

The University Extension Division can arrange for Commencement addresses to be delivered by members of its staff. The charges will be arranged in each case with the speaker desired, through the Director of the University Extension Division.

Expenses

The attention of persons interested in University Extension is called to two acts passed by recent legislatures. In 1901 an act was passed empowering public school boards to provide free lectures to be maintained at public expense, and to give the use of the school buildings for that purpose. Another act, passed in 1905, empowers trustees of public libraries to give the use of the auditorium in their buildings for public lectures, etc.

LOCAL EXPENSES.—These include hall rent, printing, advertising, etc., and the lantern and operator, where the lecture is illustrated.

UNIVERSITY CHARGES.—(1) Lecturer's Fee. The fee for a course, given by one lecturer, is $15 per lecture: i. e., for a course of three lectures, $45; for one of six lectures, $90. Most of the courses include six lectures. The fee for a single lecture is $20.

(2) The lecturer's traveling expenses and hotel bills, including sleeping car and meals when necessary. Where a lecturer delivers two or more lectures, in neighboring centers, these charges are divided among them.

EXPENSES OF STUDY CLUBS.—Where classes are conducted by a local instructor, with or without the coöperation of a member of the Extension staff, the fees for instruction must be determined by arrangement with him. The Secretary of the University Extension Division will be glad to help make satisfactory arrangements. Charges for class talks and demonstration by members of the Extension staff are the same as for the public lectures.

SYLLABUS.—The members of the Extension staff will draw up syllabi of their lectures which will be published by the University. To cover the expense of printing, a charge of a few cents

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will be made for single copies. Where twenty-five or more are ordered the charges will be lower.

The University Extension Division will be glad to furnish more detailed information regarding any branch of this work, and invites correspondence. Bulletins will be issued from time to time, stating in greater detail the work of the Extension office. These will be sent on application. Address all communications to the University Extension Division, Madison, Wis.

LECTURE COURSES

Philosophy

Professor JOSEPH JASTROW. Illustrations of Psychological Principles (Six lectures); The Subconscious (Six lectures); Aspects of Social and Individual Psychology (Six lectures).

Professor F. C. SHARP. Problems of Moral Progress (Six lectures); Psychology (Four lectures).

Education

Professor M. V. O'SHEA. Applications of Psychology to Education and Life (Six lectures); Modern Education (Six lectures); Contemporary Educational Ideals (Six lectures).

Professor EDWARD C. ELLIOTT. The Evolution of the American School Building (Two lectures); Politics and American Education (One lecture); Industry and American Education (One lecture).

History

Assistant Professor VICTOR COFFIN. The Transition from the Old Regime to the Nineteenth Century (Six lectures); The Political Development of the Chief European States in the Nineteenth Century (Six lectures).

Secretary HENRY E. LEGLER. The Evolution of the Book (Six lectures); Phases of Wisconsin History (Six lectures, illustrated).

Dr. REUBEN GOLD THWAITES. The Jesuits of New France; The French Regime in the Old Northwest; Men and Manners in Old Colonial Days; George Rogers Clark (Illustrated); Daniel Boone; The Black Hawk War; The Story of Wisconsin's Boundaries; On the Study of Local History; Among the Pueblos of New Mexico (Illustrated); A Summer in Norway (Illustrated); In Ireland with a Kodak (Illustrated). All these may be given as single lectures.

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Associate Professor C. R. FISH. The Civil War and Reconstruction (Six lectures).

Assistant Professor ULRICH B. PHILLIPS. The Ante-Bellum South (Six lectures); Plantation Architecture (One lecture, illustrated); Folk-lore Readings (One lecture).

Economics

Associate Professor T. S. ADAMS. Labor Problems (Six lectures); Problems in Taxation (Six lectures).

Dr. MARGARET A. SCHAFFNER. Labor Problems (Six lectures); Industrial History (Six lectures).

Sociology

Professor E. A. ROSS. Race and Society (Six lectures); The Psychic Life of Society (Six lectures); The Mind of the Mob (One lecture); The Near Future of American Society (One lecture); Modern Sin and Grading of Sinners (One lecture); Pessimism and the Way Out (One lecture); Education and Society (One lecture); Tunis, the Western Outpost of the Orient (One lecture, illustrated).

Business Administration

Professor D. EARLE BUBCHELL. Organization and systems (Six lectures); Salesmanship and Advertising (Seven lectures).

Assistant Professor S. W. GILMAN. Organization, Accounting, Business Forms, Credit Instruments, Funding Instruments and Practical Problems (Six lectures); Business Problems (Six lectures).

Political Science

Professor P. S. REINSCH. Political Japan (One lecture). Reform Movements in China (One lecture); Asiatic Unity (One lecture); The Hague Conferences and Tribunal (One lecture); The Empire Republic of Brazil (One lecture).

Assistant Professor S. E. SPARLING. Municipal Government (Six lectures); Our National Capitol (One lecture, illustrated); Madison Park and Pleasure Drives (One lecture, illustrated).

Dr. CHAS. MCCARTHY. Defects in Representative Government.

Greek Life and Literature

Professor C. F. SMITH. Greek Life (Six lectures); Greek Literature (Six lectures). (All illustrated).

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Greek and Roman Life

Assistant Professor GRANT SHOWERMAN. Greek Architecture (Six lectures); Greek Sculpture (Six lectures); Historic Sites in Greece (Six lectures); Life of the Ancient Greeks (Six lectures); Historic Sites in Italy (Six lectures); Ancient Rome and its Remains (Six lectures); The Life of the Ancient Romans (Six lectures); Masterpieces of Classical Literature (Six lectures); Modern Italy and its Life (Six lectures). (All illustrated.)

Scandinavian History and Literature

Professor JULIUS E. OLSON. Early Scandinavian History and Literature (Six lectures); Modern Norwegian Authors (Six lectures).

German Life and Literature

Professor A. R. HOHLFELD. Goethe: The Man and the Poet (Six lectures); The German Drama of the Nineteenth Century (Six lectures); Glimpses of Modern Germany (Three lectures).

Professor ERNST K. J. H. VOSS. Die Pflichten und die Rechte der Deutsch-Amerikaner (One lecture); Die Freundschaft zwischen Goethe und Schiller, ein Weck und Mahnruf für uns Deutsch-Amerikaner (One lecture); Carl Schurz, ein Vorbild für alle Deutsch-Amerikaner (One lecture); Parzival (One, two, or three lectures); Volks mundart und Schriftsprache in ihrem Verhältnis zu einander (One lecture); Die deutsche Kommission der Königlich Preussischen Akademie der Wissenschaften in Berlin (One lecture); Tristen und Isolde (One lecture).

Assistant Professor EDWIN C. ROEDDER. German Life in Town and Country (Six lectures, partly illustrated); German Women of the Past, and their contributions to the Advancement of Civilization (Six lectures, partly illustrated); On the Paths of William Tell (One lecture, illustrated); The Nibelungenlied (One lecture, illustrated); A Trip through the Black Forest (One lecture, illustrated); The Heidelberg Castle (One lecture, illustrated); The Religion of the Ancient Germans (One lecture); All of the above lectures in either English or German, as desired.

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Assistant Professor SCOTT HOLLAND GOODNIGHT. Bismarck: His Life and Work (One lecture); German Universities and Student Life (One lecture); Berlin and Vicinity (One lecture); The Rhine Region (Two lectures); Dresden and Saxon Switzerland (One lecture); Leipsig and Jena (One lecture); Munich and Nuremburg (One lecture); (All illustrated).

English Life and Literature

Professor J. C. FREEMAN. English Life and Literature (Six lectures); Shakespeare (Six lectures); The great Epics of the World (Six lectures); American Life and Letters (Six lectures); Who Wrote Shakespeare? (One lecture); Shakespeare, the Gentleman (One lecture); English Sonnets and Sonnetteers (One lecture); Modern Education, Does it Pay? (One lecture); Beyond Sea (One lecture); The Netherlands and the Rhine (One lecture); A Summer in Great Britian (One lecture); Italian Days (One lecture); Wonderland (One lecture); Uncle Sam Abroad, or our Consular Service (One lecture); Our Diplomatic Service (One lecture).

Assistant Professor J. F. A. PYRE. American Writers and American Culture (Six lectures); Typical English Poems (Six lectures); Art and Life (Six lectures); Hamlet (One lecture); Robin Hood (One lecture); Wordsworth (One lecture, illustrated); Byron, (One lecture); Browning (One lecture); Kipling (One lecture); Lowell (One lecture).

Assistant Professor WILLARD G. BLEYER. The Life History of Words (Six lectures); Talk on Writing English (Six lectures); The Teaching of English (Six lectures).

Assistant Professor ROLLO LU VERNE LYMAN. The Art of Public Address (Four lectures); Oratory in American History (Four lectures); Rudyard Kipling, with readings. (One lecture).

Assistant Professor T. H. DICKINSON. Present Day Tendencies in the Drama (Five lectures); English Drama in the Nineteenth Century (Four lectures).

Mrs. MARY AGNES LATHROP. Some of the Songs of Literature (Six lectures, with vocal illustrations).

The Physical Sciences

Professor LOUIS KAHLENBERG. Chemistry (Six lectures).

Professor EDWARD KREMERS. Pharmaceutical Chemistry (Single lectures or series).

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Professor H. L. RUSSELL. Microbes and Their Work (Six lectures); Man and Microbes (One lecture); Milk Supplies and Public Health (One lecture); Prevention and Treatment of Consumption (One lecture); Prevention and Treatment of Tuberculosis (One lecture); Water Supplies and Disease (One lecture); Insects and Disease (One lecture). *(All illustrated.)

Associate Professor W. D. FROST. Communicable Diseases: Their Cause and Prevention (Six lectures).

Mr. GEORGE WAGNER. Zoology (Six lectures, illustrated).

Mr. LAWRENCE MARTIN. Geographical Development of Natural Scenery. (One lecture, or in series of six lectures, illustrated); The Inside Passage to Alaska (One lecture, illustrated); Alaskan Glaciers (One lecture, illustrated); Earthquakes and Shore lines in Alaska (One lecture, illustrated); Alaska and Its Resources (One lecture, illustrated); Life of Alaskan Natives (One lecture, with exhibition of clothing, weapons, ornaments, basket-work, etc.).

Home Economics

Professor CAROLINE L. HUNT. The Extension of Private Housekeeping (Six lectures).

Miss ELLEN A. HUNTINGTON. Food (Six lectures).

Engineering

*Professor STORM BULL. Steam Engines (One lecture); Steam Turbines (One lecture); Gas Engines (One lecture); Superheated Steam (One lecture). (All illustrated.)

Assistant Professor H. J. THORKELSON. Boilers (One lecture); Compressed Air Machinery (One lecture). (Both illustrated.)

Professor C. F. BURGESS. The Electric Furnace (One lecture).

Lives of Famous Engineers.—Thomas Telford, by Dean F. E. TURNEAURE; George Stepheson, by Assistant Professor H. J. B. THORKELSON; John Ericsson, by Professor J. G. D. MACK; George H. Corliss, by Professor A. W. RICHTER; Joseph Henry, ———————— ; Sir William Siemens, by Professor C. F. BURGESS. (All single lectures, illustrated).

*Died November 17, 1907.

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Horticulture and Landscape Gardening

Professor EMIL P. SANDSTEN. Laying Out and Planning of Home Grounds (One lecture, illustrated); How to Plant and Care for Shrubs and Shade Trees (One lecture, illustrated); Growing Fruits and Vegetables for Home Use (One lecture).

Forestry

State Forester E. M. GRIFFITH. Practical Forestry in Wisconsin (One lecture, illustrated).

Physical Training

Professor J. C. ELSOM. Physical Training (Six lectures); The German System of Gymnastics (One lecture, illustrated).

Assistant Professor E. D. ANGELL. The Educational Value of Play; The Significance of the Playground; Play in the Schoolroom; The History and Development of Physical Education. (All single lectures, illustrated.)

Assistant Professor ABBY SHAW MAYHEW. Physical Training (Four lectures).

Geography and Travel

Professor J. C. ELSOM. Among the Rockies (One lecture, illustrated); Highways and Byways of the South (One lecture, illustrated).

Assistant Professor E. D. ANGELL. Oberammergau and Its Passion Play (One lecture, illustrated).

Assistant Professor ELIOT BLACKWELDER. Methods of Transportation in China (One lecture, illustrated); Chinese Temples and Sacred Places (One lecture, illustrated); The People of China and How They Live (One lecture, illustrated).

Mr. L. R. HERRICK. Ocean Steamships (One lecture); Tangier, Outpost of Barbarism (One lecture); A Journey to Paris (One lecture); Fontainebleau, Versailles and St. Denis (One lecture); The Chateaux Country (One lecture); Picturesque Brittany (One lecture); The Alhambra (One lecture); Down the Portuguese Frontier (One lecture). (All illustrated.)

Public School Music

Mr. H. E. OWEN. Music Appreciation (Three lectures); Music in the Public School (One lecture); The Orchestra (One lecture, given in connection with University Orchestra concert).

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CORRESPONDENCE-STUDY DEPARTMENT

PURPOSE

The constant aim of the Regents has been to make the University the center of every movement that concerns the interests of the State, to give every man a chance to get the highest education possible at the smallest practical cost, to bring the University and the home in close touch.

The University is reaching out a helping hand to every citizen. It plans to add to the resources of life, of education, and of industry—to give practical assistance to the farmer and mechanic, to the professional man and the business man, to the employer and the employee, to teacher and to student, to housekeeper and to home maker.

The possibility of teaching by correspondence has already been demonstrated by practical experiment. While such instruction lacks some of the advantages which resident study gives, it has compensating advantages of its own. In correspondence work, teaching is personal and individual. Every student prepares and recites the whole lesson, comes into contact with the teacher as an individual, not as a member of a large class. Correspondence work employs the spare time of the student, gives him an interest besides his daily work. It can be done at home, and thereby gives the home a new influence and charm. Correspondence work, moreover, throws a man upon his own resources and makes him self-reliant and self-determining.

There is scarcely a man or woman to whom the benefits of correspondence work may not apply, but it is especially helpful,

(1) To those who are compelled to labor for daily subsistence, yet wish to advance themselves in their own lines of work.
(2) To the man who is too old to go to school, who yet finds a need for more knowledge in his own profession.
(3) To the student who is preparing for college or university.
(4) To the teacher who finds new demands made upon her by the changing requirements of education.
(5) To the young man or woman who wishes to prepare for a business career.
(6) To the isolated man who desires some interest outside himself.

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(7) To housekeepers and homemakers who seek practical adjustment to the changing conditions of our times.

(8) To practical men in business and the professions, to those in public service—in fact to all who are eager for knowledge, who are reaching out for mental stimulus, and who desire to keep abreast of the times, the work of the Correspondence Department must appeal.

To meet these needs the University has organized this new department. It is ready to answer the demands of the people if they will but make them known.

PLAN

The work of the Correspondence Department as at present organized, offers one or more courses in the following lines:

Agriculture.
Business and Industry.
Engineering,
  Electrical, Mechanical, Steam, Stationary and Civil.
Mechanical Drawing.
Surveying.
Highway Construction.
The Languages,
  French, Italian, Spanish, German, Greek, Latin.
History,
  Ancient, Medieval, Modern, and American.
Home Economics.
Political Economy.
Political Science.
Sociology.
Philosophy.
Education.
Mathematics.
English and Literature.
Physical Science.
  Bacteriology, Botany, Geology, Chemistry, etc.
Law.
Pharmacy.
Music.

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A STANDARD UNIT OF INSTRUCTION

These courses are prepared by the members of the University Faculty, and each course represents a definite amount of work corresponding to an equivalence of work done in residence at the University. The unit course will be divided, where practical, into forty weekly lessons. This is an arbitrary division for purposes of convenience in a standard course of instruction. Such a course represents an equal amount of work to that done in residence at the University in a full five recitation hour study a week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks on a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies rapidly or slowly as he is able, provided he completes the study within the time limit allotted for the course.

SHORT PERIOD RESIDENCE STUDY

The Department wishes to make its work thorough and permanent, and the various courses have been arranged wherever practicable to work in harmony with short courses of residence study and the Summer Session.

METHOD

I. Procedure

The method of work is as follows: The student who wishes to undertake correspondence study, should first select such course or courses as he may wish, and send for application blank. He should fill out the blank with information called for, and return it with required fee to the office of the Extension Division. The necessary text-books, outfit, etc., may also be purchased through the Extension Division if the student so desires. Upon receipt of application and fee, the first two lessons will be sent, with instructions for study, and methods of preparation, and directions for returning lesson sheets. Each lesson will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Examinations are optional with the student, but are required

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where credits are wanted. These examinations must be taken at the University or under conditions approved by the University.

II. Regulations

(1) Students may begin correspondence courses at any time during the year.

(2) For admission to the Correspondence-Study Department no preliminary examination is required. All that is needed is a good elementary education and a willingness and persistency for study.

(3) For the benefit of the Department it is desired that the applicant state fully the purpose he has in view in taking the work, and also in detail such educational advantages, training, or experience as he may have had. The Department will endeavor to meet the needs of the individual student by advice and suggestion, as well as by formal instruction, but whenever it finds that the course elected is not for the best interest of the student, it reserves to itself the right to reject or to advise change or discontinuance.

(4) Correspondence students will be required to complete one course within twelve months, two courses within fifteen months, three courses within eighteen months from date of registration. Three unit courses constitute a maximum for simultaneous enrollment.

(5) During an Instructor's vacation, a substitute will be provided to carry on such course or courses, if possible.

(6) No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered.

EXPENSES

(1) The price of a full unit course of forty lessons is twenty dollars ($20.00), payable in advance. This fee covers the entire expense of instruction, and postage *one way*. Where a course is less than a unit, it is offered as a convenient fraction (1-2, 1-4, 1-5, etc.) and the price charged or credit given is a corresponding fraction of the unit, unless otherwise stated.

(2) All necessary text-books, drawing outfits, etc., are extra. These may be ordered through the department at a minimum cost to the student.

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(3) A course may be paid for in monthly payments of five or ten dollars when a student finds it necessary. In this plan the general rule of payment in advance applies. There is no extra charge for a course where payments are made by installments.

(4) When the student registers simultaneously for more than one unit course, the fees shall be two courses for thirty-five dollars ($35.00); three courses for fifty dollars ($50.00).

(5) Money should be sent to University Extension Division, University of Wisconsin, Madison, Wis., by postal or express order, or by Milwaukee or Chicago draft, made payable to University of Wisconsin.

UNIVERSITY CREDIT

(1) Persons who are twenty-one or more years of age, or have had the required preparation for admission to the University, will upon satisfactory completion of a correspondence-study course designed for credit, be awarded a certificate of credit in the University.

(2) The maximum credit granted for work done by correspondence study, however, may not exceed one-half the unit hours required for graduation.

(3) At the completion of each correspondence-study course for University credit, the student shall pass an examination held under the direction of the instructor giving such course, or by some one designated by the University for that purpose.

(4) Work taken for credit may not be done by any student while in attendance at any institution of learning.

(5) In special cases credit may be allowed for correspondence-study courses of preparatory grade to satisfy partial entrance requirements to the University.

(6) Credit to an amount not exceeding one-fourth of the unit hours required for graduation may be given at the University of Wisconsin to students of such other correspondence schools or departments as may be designated by the University of Wisconsin. It is, however, provided that such credits shall be subject to the same provisions as are made in the University of Wisconsin, and subject to the action of the accredited schools committee or the advanced standing committee, as the case may require.

(7) Credit records of correspondence-study work are filed in the University Extension office until the student has satisfactorily

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completed one year of study in residence. When all the requirements are satisfied, the correspondence-study records may be transferred to the Registrar's office and applied toward graduation.

(8) All courses offered by the Correspondence-Study Department, whether taken for University credit or not, are on a uniform basis in reference to the amount of work offered. Courses which are satisfactorily completed have, therefore, a definite value, and all students who successfully complete such courses will be awarded certificates of the grade in which they are taken.

CORRESPONDENCE-STUDY COURSES

Philosophy

ASSISTANT PROFESSOR DEARBORN AND MR. OTTO

Course 1. General Psychology.
Course 10. Ethics.

Education

PROFESSOR O'SHEA, PROFESSOR ELLIOTT, AND ASSISTANT PROFESSOR DEARBORN

Course 1. Principles of Teaching.
Course 2. The Development of Childhood and Youth.
Course 3. Educational Psychology.
Course 4. Advanced Educational Psychology.
Course 6. History of Education.
Course 7. American Educational History.
Course 8. Administration and Supervision of Education.

History

PROFESSOR TURNER, ASSOCIATE PROFESSOR FISH; MR. CHASE, MR. DILWORTH, AND MR. NORWOOD

Course 1. United States History.
Course 2. American History 1760-1830.
Course 6. English History.
Course 12. Medieval History.
Course 20. Ancient History.

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Political Economy

PROFESSORS COMMONS, ELY, SCOTT, ROSS, ASSOCIATE PROFESSOR TAYLOR, MISS SUMNER AND MR. HESS

Course 1. Elements of Political Economy.
Course 2. The Labor Movement.
Course 3. Transportation.
Course 4. Socialism.
Course 6. Agricultural Economics.
Course 7. Commercial Geography.
Course 10. Elements of Money and Banking.
Course 11. Practical Banking.
Course 15. Social Psychology.
Course 16. General Sociology.
Course 17. Practical Sociology.

Business Administration

PROFESSOR BURCHELL AND ASSISTANT PROFESSOR GILMAN.

Course 1. Business Forms, Credit Instruments, and Funding Operations.
Course 2. Business Correspondence.
Course 3. Business Organization.
Course 4. Bookkeeping.
Course 5. Commercial Accounting.
Course 6. Cost of Production and Factory Accounting.
Course 7. Financial Accounting.
Course 8. Office Appliances and Systems.
Course 9. Advertising.
Course 10. Salesmanship.
Course 11. Markets and Buying.
Course 12. Credits and Collections.
Course 13. Financial Institutions.
Course 14. Practical Problems in Business Administration.
Course 15. General Administration.

Political Science

DR. M'CONACHIE

Course 1. Elementary Political Science.
(a) Government, national, state, and municipal; special attention to the judiciary.

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(b) Government, national, state, and municipal; special attention to the executive.

Course 2. The Law and Politics of the Press.
(a) The Law of the Press.
(b) The Politics of the Press.

Course 3. Legislatures and Political Parties.
(a) Organization and Procedure of American Legislative bodies.
(b) Political Parties and Campaigns.

Course 4. American Diplomacy and World Politics.
(a) The History and Principles of American Diplomacy with the present organization and activities of the Department of State.
(b) Important living questions in International Politics.

Course 5. Constitutional and International Law.
(a) Constitutional Law; History, Interpretation, Comparison.
(b) The Law of Nations; History, Progress, Present aspects.

Course 6. Civic Progress and Public Service.
(a) City Government; Present-day Civic Activities and Progress.
(b) Officers and Employees: Their Relations to Government and People.

Greek

PROFESSOR SMITH AND DR. PITMAN

Course 1. Elementary Greek—(summer session).
Course 2. Xenophon's Anabasis.
Course 3. Homer's Iliad I-III or Odyssey VI-VIII.
Course 4. New Testament Greek.

Latin

DR. PITMAN

Course 1. Elementary Latin.
Course 2. Caesar.
Course 3. Cicero.
Course 4. Vergil: Aeneid.

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Course 5. Elementary Prose Composition.
Course 6. Advanced Prose Composition.
Course 7. Livy: Books I and XXI.
Course 10. Cicero: De Senectute.
Course 12. Terence: Phormio and Andria.
Course 14. Horace: Odes.
Course 15. Horace: Satires and Epistles.
Course 16. Catullus.
Course 17. Roman Mythology.
Course 20. Cicero: Letters and Orations.
Other Advanced Reading Courses in Authors commonly read in colleges.

French

MR. SCHLATTER

Course 1. Beginners' French.
Course 2. Elementary French.
Course 3. Intermediate French. A.
Course 4. Intermediate French. B.
Course 5. Technical French.
Course 10. General Survey of French Literature

Italian

MR. SCHLATTER

Course 1. Elements of Italian.
Course 2. Reading of Italian.

Spanish

MR. SCHLATTER

Course 1. Beginners' Spanish.
Course 2. Elementary Spanish.

German

DR. PEOKOSCH AND DR. HAUSSMANN

Course 1. Elementary German, Part A.
Course 2. Elementary German, Part B.
Course 3. Intermediate German, Part A.
Course 4. Intermediate German, Part B.

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Course 6. Scientific German.
Course 7. Commercial German.
Course 8. Critical German Prose.
Course 9. Grammar Review.
Course 12. German Composition.
Course 19. Elementary Teachers' Course.
Course 20. Advanced Teachers' Course.
Course 25. Modern German Dramatists.
Course 26. Modern German Novelists.
Course 22. Schiller.
Course 21. Goethe.
Course 29. Goethe's Faust.
Course 30. History of German Literature.
Course 31. History of the German Language.

Studies in Lessing, Heine, Uhland, and Modern German Poetry are also available. Courses in Gothic, Old High German, Middle High German, and Old Saxon will also be arranged.

English

ASSISTANT PROFESSORS CAIRNS, BLEYER, LYMAN, BEATTY, DICKINSON, AND DR. WOOLLEY

Course 1. Elementary English.
Course 2. English Grammar.
Course 3. English Composition. A.
Course 4. The Teaching of English.
Course 5. English Composition. B.
Course 6. English Composition. C.
Course 7. Intermediate English Composition.
Course 10. The Composition of Public Address.
Course 17. Introductory Course to Shakespeare.
Course 18. The Poetry of Tennyson.
Course 19. The Poetry of Browning.
Course 31. The New England Poets.
Course 32. Hawthorne and Poe.
Course 51. History of English Literature.
Course 52. History of American Literature.

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Mathematics

MR. WOLFF, MR. GRIMES, MR. SMITH, AND MR. DUVAL

Course 1. Elementary Algebra, Part A.
Course 2. Elementary Algebra, Part B.
Course 3. Plane Geometry.
Course 4. Solid Geometry.
Course 5. Plane Trigonometry.
Course 6. University Algebra.
Course 7. Analytic Geometry.
Course 8. Differential Calculus.
Course 9. Integral Calculus.
Course 10. Applied Mathematics. (For Artisans.)
Course 11. Applied Arithmetic.

Chemistry

PROFESSOR KAHLENBERG AND MR M'DANIEL

Course 1. Elementary Chemistry.
Course 2. Qualitative Analysis.

Geology and Mineralogy

PROFESSOR LEITH, ASSISTANT PROFESSOR WINCHELL, MR. MARTIN, MR. STEIDTMAN AND MR. COX

Course 1. Mineralogy.
Course 2. Economic Geology.
Course 3. Physical Geography.

Botany

ASSISTANT PROFESSOR DENNISTON

Course 1. Morphology and Classification of Flowering Plants.
Course 2. General Morphology of Algae.
Course 3. General Morphology of Fungi.
Course 4. General Morphology of the Mosses and Ferns.
Course 5. Plant Histology.
Course 6. Elementary Plant Physiology.
Course 7. Drugs and Food Products.
Course 8. Trees and Shrubs.

Astronomy

DR. EATON

Course 1. Popular Astronomy.

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Bacteriology and Hygiene

ASSOCIATE PROFESSOR FROST

Course 1. Principles of Elementary Bacteriology.
Course 2. Communicable Diseases.
Course 3. Household or Industrial Bacteriology.
Course 4. Public Health Problems.
Course 6. General Bacteriology.
Course 10. Infection and Immunity. (For Physicians.)

Music

MR. OWEN

Course 1. Public School Music.
Course 2. Appreciation of Music.

Home Economics

PROFESSOR HUNT AND MISS HUNTINGTON

Course 1. Selection and Preparation of Foods.
Course 2. House Sanitation.
Course 3. House Decoration.

Highway Construction

MR. HOTCHKISS

Course 1. Highway Construction.

Mechanical Drawing

PROFESSOR PHILLIPS, MR. MILLAR, AND MR. HAMMER

Course 1. Mechanical Drawing, Part A.
Course 2. Mechanical Drawing, Part B.
Course 3. Descriptive Geometry.
Course 4. Freehand Lettering.

Mechanical Engineering

PROFESSORS MACK, MAURER, PENCE, PHILLIPS, RICHTER, ASSISTANT PROFESSORS SMITH, THORKELSON, MR. ATWOOD, MR. GRIMES, MR. HAMMER, MR. HUELS, MR. KEOWN, MR. MILLAR, AND MR. SHEALY

Group 1. Machine Design Group.
Group 2. Steam Group.
Group 3. Locomotive Engineering Group; and other groups.

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Course 201. Practical Mathematics for Artisans.
Course 205. Mechanical Drawing.
Course 206. Elements of Mechanics.
Course 207. Strength of Materials.
Course 208. Mechanism.
Course 209. Machine Elements.
Course 210. Advanced Design.
Course 215. Heat.
Course 216. Boilers.
Course 217. Steam Engines.
Course 218. Valve Gears.
Course 219. Gas Engines and Gas Producers.
Course 220. Test Methods.
Course 221. Lubricants.
Course 222. Refrigeration.
Course 223. Heating and Ventilating.
Course 224. Power Plant Economics.
Course 225. Compressed air.
Course 226. Locomotive Maintenance.
Course 227. Air Brakes.
Course 228. Economics of Train Operation.
Course 229. Electric Machinery.
Course 230. Engine Running.
Course 231. Fuels.
Course 232. The Locomotive.
Course 233. Central Station Design.

Courses in Electrical Engineering

ASSISTANT PROFESSOR SHUSTER AND MR. WICKENDEN

Course 301. Mathematics.
Course 305. Mechanical Drawing.
Course 306. Elements of Mechanics.
Course 307. Strength of Materials.
Course 308. Machine Design.
Course 309. Machine Elements.
Course 310. Magnetic and Electric Circuits.
Course 311. Dynamo Electric Machinery.
Course 312. Theory of Alternating Currents.
Course 131. Alternating Current Machinery.
Course 314. Electric Lamps and Illumination.

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Course 315. Theory of Heat.
Course 316. Central Electric Stations.
Course 317. Electric Wiring, Power Transmission and Distribution.
Course 318. Telephones, and Telephone Apparatus.
Course 319. Meters and Metering.
Course 320. Testing of Electrical Machinery.
Course 321. Electric Railways.
Course 322. Electric Batteries.

Commercial Law

ASSISTANT PROFESSOR GILMAN

Course 1. Contracts.
Course 2. Agency.
Course 3. Sales.
Course 4. Negotiable Instruments. (Commercial Paper).
Course 5. Personal Property.
Course 6. Insurance.
Course 7. Partnership.
Course 8. Corporations (Private Corporations).
Course 9. Real Estate.
Course 10. Probate Law.

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PHYSICAL TRAINING

PROFESSORS ELSOM, HUTCHINS; ASSISTANT PROFESSORS ANGELL, MAYHEW, AND MR. TEN EYCK.

The department of Physical Training has jurisdiction over all gymnastic and athletic activities. It is the aim of the department to give the students such exercises, games, and sports as will best create and maintain a vigorous physical health. It endeavors to reach a large number of students, especially the weak and undeveloped, and to give to all exercise that will be not only beneficial but interesting. Physical training is required of all freshman and sophomore students on two days of each week, from November to May.

The Gymnasium is one of the largest in the country. Its size is 200 feet in length by 100 feet in width. On the ground floor are to be found the necessary offices, the locker rooms, the bath rooms, swimming pool. On the second floor, besides the necessary offices and store rooms, there is an unobstructed hall 165 by 98 feet, used for the purposes of gymnastic exercise and military drill. The gymnasium equipment includes the usual apparatus and developing machines, which are supplied in sufficient quantity to meet the requirements of large classes. The third floor contains six large hand-ball courts, two running tracks, eight hydraulic rowing-machines.

A large athletic field is provided for the use of students, and all intercollegiate and other games and meets are held here. The field is equipped with two large grand-stands, a running track, and other necessary features. The University boat-house is located next to the gymnasium on the shore of Lake Mendota. The present equipment of ten shells is being increased yearly. A new forty horse-power launch was purchased last year.

COURSES IN PHYSICAL TRAINING FOR MEN

First Year. First Semester

A. Physical Examinations. Required each semester of all freshmen. The examination includes about fifty measurements of the body, various strength tests, the examination of heart

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and lungs and other vital organs, tests for vision and hearing, and special tests for curvature of spine, and other physical inequalities. Corrective exercise is prescribed and advice is given concerning special needs of the individual student. One examination is required. Examinations by appointment. Dr. ELSOM.

1. Gymnastics. Cross-country running; calisthenic drills, setting up exercises, etc.; indoor games. *Two periods a week; one unit-hour.* Dr. ELSOM.

First Year. Second Semester

2. Gymnastics. Continuation of course 1. Lectures on the physiology of exercise, personal hygiene, health culture, etc. These lectures take the place of the regular gymnasium classes on the days when the lectures are given. Dr. ELSOM.

Second Year. First Semester

3. Gymnastics. Cross-country running; gymnasium drill; elementary work on gymnastic apparatus, horses, parallel bars, vaulting, horizontal bars, bucks, mats, ladders, rings, etc. Gymnastic games. *Two periods a week; one unit-hour.* Mr. ANGELL.

Second Year. Second Semester.

4. Gymnastics. Continuation of work of first semester. *Two periods a week; one unit-hour.* Mr. ANGELL.

As a substitute for the required course in gymnastics (courses 1, 2, 3, and 4), credit in the following special classes is given to men physically able to take the work.

5. Gymnastics; special classes.

5a. Advanced Apparatus Work, to which candidates for the gymnastic team are admitted. Mr. ANGELL.

5b. Class in Track and Field Athletics. The work consists of body building in the education of special groups of muscles with technical instruction in starts, dashes, high and broad jumping, pole-vaulting, shot-putting, and distance running. Dr. HUTCHINS.

5c. Cross-Country Running. Members of the Cross-Country Club working regularly until Thanksgiving are credited in Physical Training. Dr. HUTCHINS.

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5d. Swimming. The class meets twice a week and is open to all men who are unable to swim. The various strokes are taught, also diving, under-water swimming, and life-saving methods. Compulsory for sophomores. Mr. TEN EYCK.

5e. Boxing. All the principal blows are taught, as well as counters, guards, and parries. Mr. ANGELL.

5f. Fencing. A class for beginners, who are taught the position of en guard, and all principal attacks and parries. Mr. ANGELL.

5g. Baseball and Football. Recreative sport as a relaxation from study offers no better channels for general development than baseball in the spring and football in the fall months. Great care is exercised in excluding from the more vigorous sports those incapable of deriving physical benefit therefrom. Dr. HUTCHINS.

5h. Rowing. Instruction is given on the rowing machines during the winter months, and in watermanship in the fall and spring in the barges and shells on Lake Mendota. Rowing is notable for the development of the powers of endurance. The University now owns ten shells, accommodating seventy men on the water at one time. Mr. TEN EYCK.

5i. Basketball. One of the best indoor sports, in the totality of physical development, is afforded ample space and opportunity on the spacious main floor. Mr. ANGELL.

5j. Teachers' Class. To this class will be admitted those who desire to teach physical training. The methods and principles of gymnastics will be given, and the gymnastic systems will be illustrated. Instruction in both light and heavy gymnastics will be included in the course. Dr. ELSOM and Mr. ANGELL.

PHYSICAL TRAINING FOR WOMEN

Chadbourne Hall contains a well equipped gymnasium for the use of the young women attending the University. The room is two stories high, has a floor space of 71 by 40 feet, and is provided with twenty-seven dressing rooms and 128 lockers. The dressing rooms connect with shower baths, supplied with hot and cold water, furnishing bathing facilities for those who take gymnastics.

The new Women's Gymnasium Building, which will be ready

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for occupancy at the beginning of the year 1908-09, will contain a modern and completely equipped gymnasium for women. It will be provided with adequate dressing rooms, shower rooms and lockers. There will be a running track over the great gymnasium floor and a swimming pool in the basement. With the establishment of this new gymnasium, the women of the University will be given excellent facilities for elementary and advanced courses in physical training.

The work is required of all freshmen and sophomores. The freshmen are required to meet in the gymnasium on the first Thursday of the college year at 4 o'clock. Sophomores will meet on the same day at 5 o'clock.

The main objects of the training for women are the acquiring and maintaining of good health and the producing of a good physical foundation for mental activity. Other results are poise, control, grace, and development.

Each student will undergo a careful physical examination on entering the department, in order that the physical condition may be known, and suitable exercise prescribed for individual cases. A second examination is given during the second semester, in order that the improvements and benefits of the course of exercise may be shown.

The apparatus is complete and varied, consisting of chest weights, dumb-bells, wands, bar-bells, etc., besides a complete outfit of Swedish apparatus and other forms of appliance for development and physical improvement. Music is used in class-drills.

The gymnasium suit requires four yards of double-width (54 in.) dark blue serge, and consists of a loose shirtwaist and bloomers. The waist has a sailor collar trimmed with narrow white braid. The Butterick pattern may be used. The suit can be obtained here for $5.00.

An outing skirt at least six inches from the ground is also required for out-door sports.

Out-door sports are required work in the fall and spring, and are under the direction of a competent instructor. They are placed upon the same basis as class-work, and an equal credit is given for such training.

The Women's Athletic Association is maintained to further all out-door sports: tennis, field hockey, basketball, cross-country walking, bowling, etc.

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Course in Teachers' Gymnastics

A normal class in theory of physical training and in practice of teaching gymnastics meets once a week during the year. The credit given is one hour a semester. *Throughout the year; Tu., at* 3.

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MILITARY SCIENCE AND TACTICS

CAPTAIN RALPH MCCOY, U. S. INFANTRY, COMMANDANT.

Military instruction at the University of Wisconsin is not elective, but is required by law. The congress of the United States and the legislature of the state of Wisconsin have made it a special and imperative feature of the course of education furnished at this institution. By the regulations of the University, all able-bodied male students of the freshman and sophomore classes are required to take military drill unless excused by proper authority.

Freshmen who, prior to entering the University, have received the equivalent of one year's instruction in the University regiment, may, at the discretion of the Commandant, be required to drill one year only, provided they furnish proper credentials from accredited military schools or National Guard organizations. Students who have served honorably in the Army or Navy of the United States, may receive full credit for drill at the University without further military instruction.

Students from foreign countries, not intending to become citizens of the United States, may, at the discretion of the Commandant, be excused from drill.

Students over twenty-two years of age taking a special course and not intending to graduate, may be excused from drill; but should such students change at any time from a special to a full course, they will be required to make up the full two years of drill.

Students who enter as candidates the crews or intercollegiate athletic teams may be excused from drill by the Commandant upon recommendation of the Department of Physical Training. When a member of a crew or an athletic team shall be discharged from such crew or team, he will be reported back to the Commandant for drill at the next drill succeeding his discharge.

Military drill is not required of Normal School graduates.

The work of the Military department embraces a course in drill regulations, a course of lectures on military subjects, and

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practical instruction in the school of the soldier, squad, company and battalion, target practice, signal drill, and drill in first aid to the injured. All commissioned officers, the sergeants major, quartermaster sergeants, and first sergeants, are required to take this course. The credit for drill regulations and the lecture course is that of a two-hour study.

Drills will begin at the opening of the first semester, and be held at least twice a week throughout the year.

All appointments to office in the companies shall originate in the sophomore class, but officers may be promoted and continued in office during their junior and senior years.

The uniform of the regiment is similar to the fatigue or undress uniform of the United States Army, and can be obtained in Madison at a cost of $9.50 to $15.00.

Organization

The organization is that of a regiment of infantry, consisting of two battalions of four companies each, a brass band, a trumpet corps, and signal, target, and hospital corps. These organizations will be supplied with a full quota of officers. Students will enter the infantry regiment and afterward be specially assigned to the other organizations at the discretion of the Commandant.

The University fees of cadets appointed to all grades above that of lieutenant will be remitted. The same fees and an additional prize of fifty dollars will be paid the cadet colonel, lieutenant colonel, and adjutant. These officers will act as assistant instructors in Military Science and Tactics.

Upon graduation specially qualified students receive from the Governor of Wisconsin commissions of brevet second lieutenants in the State National Guard, subject to assignment to duty for five years after graduation.

ROSTER OF UNIVERSITY CORPS OF CADETS, 1907-08

Commandant

Captain Ralph McCoy, U. S. Infantry.

Surgeon

Lieutenant-Colonel James C. Elsom, Professor of Physical Training.

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Cadet Officers

REGIMENTAL, FIELD, AND STAFF

Colonel, Charles S. Mercein.
Lieutenant-Colonel, Miles W. Birkett.
Major and Adjutant, Adolph Heinz.
Captain and Regimental Quartermaster, Louis W. Wille.
Captain and Regimental Adjutant, Frederico F. Cardinas.
2nd Lieutenant and Assistant Inspector, H. H. Winsor.
Sergeant and Chief Trumpeter, A. J. King.

FIRST BATTALION

Major, Frank M. Kennedy.
1st Lieutenant and Adjutant, A. W. Ovitt.
2nd Lieutenant and Quartermaster, L. M. Hammond.
Sergeant Major, F. A. Schnuchel.
Quartermaster Sergeant, Roy L. Dodd.

SECOND BATTALION

Major, Philip F. Schwenker.
1st Lieutenant and Adjutant, H. J. Newman.
2nd Lieutenant and Quartermaster, S. A. Pease.
Sergeant Major, T. M. Reynolds.
Quartermaster Sergeant, L. R. Talbot.

COMPANY OFFICERS

Company A
Captain, Ren G. Saxton.
1st Lieut., Otto Weise.
2nd Lieut., J. L. Hensey.
1st Sergt., J. H. Angle.

Company B
Captain, Edgar B. Colladay.
1st Lieut., J. R. Newman.
2nd Lieut., J. R. Coleman.
1st Sergt., W. G. Caldwell.

Company C
Captain, Donald R. Mihills.
1st Lieut., F. H. Buchanan.
2nd Lieut., A. E. Meinicke.
1st Sergt., C. B. McGrath.

Company D
Captain, Michael H. Flynn.
1st Lieut., W. B. Schulte.
2nd Lieut., J. T. Welsh.
1st Sergt., R. M. Hoyt.

Company E
Captain, Alonzo B. Ordway.
1st Lieut., H. A. Olds.
2nd Lieut., O. S. Soriano.
1st Sergt., O. F. Bradley.

Company F
Captain, E. Carl Griswold.
1st Lieut., J. M. Bessey.
2nd Lieut., B. J. Bockelman.
1st Sergt., F. F. Stearns.

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Company G

Captain, Ross Sutherland.
1st Lieut., R. E. Doherty.
2nd Lieut., H. A. Schuette.
1st Sergt., T. M. Kearney,

Company H

Captain, Louis G. Arnold.
1st Lieut., R. A. Gesell.
2nd Lieut., J. D. Van Slyke.
1st Sergt., J. B. Hoefer.

HOSPITAL CORPS

Lieut. Col. James C. Elsom, Surgeon.
1st Lieut., M. A. Freschl.
1st Sergt., F. R. Goldsmith.

SIGNAL CORPS

1st Lieut., K. E. Wagner. 1st Sergt., P. S. Godfrey.

TARGET DETACHMENT

Captain, Arthur L. Luedke. 1st Sergt., A. L. Ballschnieder.

BAND

Captain, Herman E. Owen. 1st Lieut., G. A. Diestler.
2nd Lieut., C. A. Mann.

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THE SUMMER SESSION

OFFICERS OF ADMINISTRATION

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
GEORGE C. SELLERY, Ph. D., Director of the Summer Session.

DURATION OF THE SESSION

The tenth Summer Session of the University of Wisconsin opens June 22, 1908. The session lasts six weeks and closes July 31, except in the College of Law where the session continues for ten weeks and ends August 29.

Classes of Courses

Courses, both academic and professional, are offered for graduates and for undergraduates in arts, law, engineering, and agriculture; for teachers in colleges, high schools, and technical schools; and for special students, such as lawyers and practicing engineers. Practically all the courses carry full academic credit.

Terms of Admission

The requirements for graduates and undergraduates who desire University credit are the same for the summer session as for the other sessions of the University.

All persons, however, who desire to share in its advantages may be enrolled in the Summer Session without passing the entrance examination. They are freely admitted to all courses as auditors, and are permitted to elect work in the courses for which they are qualified. Credit toward a degree will be given, however, only to students who satisfy the entrance requirements of the University.

Fees and Registration

The general fee for the Summer Session, irrespective of the number of courses taken, is $25 in the College of Law, and $15 in the other Colleges. Those who attend merely as visitors pay the same fee as other students.

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Registration must precede entrance upon any part of the work of the Session. Registration takes place Saturday, June 20, and Monday, June 22, at the office of the Registrar, 165 University Hall.

DEPARTMENTS OF STUDY

COLLEGE OF LETTERS AND SCIENCE

Agriculture

PROFESSOR HENRY, AND MR. BENKENDORF

1. The Elements of Agriculture. Lectures, *M.*, *W.*, *F.*, *at* 8. Laboratory work in the dairy. *Two hours credit.*

Anatomy

PROFESSOR BARDEEN AND DR. ALLEN

1. Physiological Anatomy. *M.*, *W.*, *F.*, *at* 9. *One hour credit.* Professor BARDEEN.
2. Mammalian Anatomy. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 9 *to* 12. *Three hours credit.* Dr. ALLEN.
3. Embryology. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 2 *to* 4. *Two hours credit.* Dr. ALLEN.
4. Human Anatomy. *M.*, *Tu.*, *W.*, *Th.*, *F.*, 9 *to* 5. Professor BARDEEN.
5. Modern Laboratory Methods and Research. *Hours to be arranged by consultation.* Professor BARDEEN.

Botany

PROFESSOR HARPER; ASSOCIATE PROFESSOR ALLEN; AND DR. MARQUETTE

1. General Botany. *M.*, *W.*, *F.*, *at* 9. Laboratory hours on consultation. *Two or three hours credit.* Professor HARPER and Dr. MARQUETTE.
2. Algae. *W.*, *Th.*, *F.*, 2 *to* 4. May be taken in connection with course 3, the two together giving three hours credit. Professor HARPER and Dr. MARQUETTE.
3. Mosses and Ferns. *M.*, *Tu.*, 2 *to* 4, and two additional hours to be arranged. Associate Professor ALLEN.
4. Morphology of Seed Plants. Lectures and laboratory, *M.*, *Tu.*, *Th.*, *F.*, 10 *to* 12. *Two hours credit.* Associate Professor ALLEN.

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5. Botanical Methods. *Hours on consultation. One hour credit.* Professor HARPER.
6. Seed Plants and Ferns. *Tu., Th.,* 4 *to* 6. *One hour credit.* Professor HARPER and Dr. MARQUETTE.
7. Diseases of Plants. *M., W., F.,* 9 *to* 11. May be taken in connection with course 2 or 3, either combination giving three hours credit. Professor HARPER and Dr. MARQUETTE.
8. Special Physiology of the Seed Plants. *Hours on consultation.* Credit according to work done. Professor HARPER and Dr. MARQUETTE.
9. Modern Aspects of Heredity. *Three lectures a week. One hour credit. Hours on consultation.* Associate Professor ALLEN.
10. Research. Professor HARPER and Associate Professor ALLEN.

Chemistry

PROFESSOR KAHLENBERG; ASSISTANT PROFESSOR WALTON; DR. KOELKER, AND MR. JOHNSON

1. General Chemistry. Lectures, *M., Tu., W., Th., F., at* 11. *Two hours credit* for the lecture course; in the laboratory, credit according to amount of work done. Professor KAHLENBERG, Dr. KOELKER, and Mr. JOHNSON.
2. Qualitative Analysis. Lectures, *Tu., Th., at* 8. *Two or more hours credit.* Assistant Professor WALTON.
3. Quantitative Analysis. Lectures, *M., W., at* 10. *Two or more hours credit.* Assistant Professor WALTON.
4. Advanced Quantitative Analysis. Lectures, *F., at* 10. *Two or more hours credit.* Assistant Professor WALTON.
5. Organic Chemistry. Lectures, *M., Tu., W., Th., F., at* 9. Laboratory work, two or more hours per day. *Three or more hours credit.* Dr. KOELKER.
6. Advanced Organic Chemistry. *Two or three hours credit.* Dr. KOELKER.
7. Physical Chemistry. Lectures, *M., W., F., at* 8. *Three hours credit.* Professor KAHLENBERG and Mr. JOHNSON.
8. Chemical Research. Credit according to amount of work done. Professor KAHLENBERG, Assistant Professor WALTON, and Dr. KOELKER.

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Education

PROFESSOR ELLIOTT AND ASSISTANT PROFESSOR DEARBORN

1. Principles of Education. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. *Two hours credit.* Assistant Professor DEARBORN.
2. Seminary in Educational Psychology. *M.*, 4 *to* 6 (subject to change). Assistant Professor DEARBORN.
3. History of Education in the Nineteenth Century. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. *Two hours credit.* Professor ELLIOTT.
4. Administration and Supervision of Education. *M.*, *Tu.*, *W.*, *Th*, *F.*, *at* 9. *Two hours credit.* Professor ELLIOTT.

English

PROFESSOR CUNLIFFE; ASSOCIATE PROFESSOR LATHROP; ASSISTANT PROFESSOR PYRE; DR. LEONARD, AND MR. BASSETT

1. Preparatory English. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8 and *M.*, *W.*, *F.*, *at* 9. Mr. BASSETT.
2. Study of English Prose Style. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8, *M.*, *W.*, *F.*, *at* 9. *Three hours credit.* Dr. LEONARD.
3. Shakspere to Dryden. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. *Two hours credit.* Assistant Professor PYRE.
4. Dryden to Coleridge. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 10. *Two hours credit.* Assistant Professor PYRE.
5. Three Poets of the Romantic Movement: Byron, Shelley, and Keats. *M.*, *W.*, *F.*, *at* 11. *One hour credit.* Dr. LEONARD.
6. Victorian Poetry. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. *Two hours credit.* Associate Professor LATHROP.
7. The Novel. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. *Two hours credit.* Associate Professor LATHROP.
8. Shakspere. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 8. *Two hours credit.* Professor CUNLIFFE.
9. The Development of the Drama. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 9. *Two hours credit.* Professor CUNLIFFE.
10. Teachers' Course in English. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 12. *Two hours credit.* Mr. BASSETT.

Geology

MR. WHITBECK OF THE NEW JERSEY STATE NORMAL SCHOOL

1. Physical Geography for High School Teachers. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *at* 11. *Two hours credit.*

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2. Physiography of the United States. *M., Tu., Th., at* 12. *One hour credit.*
3. Field study. *One hour credit.*

German

PROFESSOR VON KLENZE OF BROWN UNIVERSITY, PROFESSOR VOSS; ASSISTANT PROFESSOR EVANS; DR. KIND, DR. HAUSSMANN, AND MR. BRUNS

1. Beginners' German. *M., Tu., W., Th., F.,* 8 *to* 10. *Four hours credit.* Dr. HAUSSMANN.
2. Second Year German. *M., Tu., W., Th., F.,* 8 *to* 10. *Four hours credit.* Mr. BRUNS.
3. Conversation. *M., Tu., W., Th., F., at* 9. *One hour credit.* Assistant Professor EVANS and Dr. KIND.
4. Rapid Reading. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Dr. KIND.
5. Classical and Modern Writers. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Dr. HAUSSMANN.
6. Modern German Dramatists. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Dr. KIND.
7. Advanced Practice in Writing and Speaking German. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Mr. BRUNS.
8. Teachers' Course. *M., Tu., W., Th., F., at* 8. *One or two hours credit.* Professor VOSS.
9. Middle High German. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Assistant Professor EVANS.
10. History of German Literature since Klopstock. *M., Tu., W., Th., F., at* 12. *Two hours credit.* Professor VON KLENZE.
11. Early Middle High German. *M., W., F., at* 9. *One hour credit.* Professor VOSS.
12. German Drama from the Renaissance to Lessing. *M., W., F., at* 10. *One or two hours credit.* Assistant Professor EVANS.
13. Seminary. The Modern Short-Story in the Eighteenth Century. *M., W.,* 2:30 *to* 4. *One or two hours credit.* Professor VON KLENZE.
14. Seminary in German Philology. *Tu., Th.,* 9:30 *to* 11. *One or two hours credit.* Professor VOSS.
15. Research. Professors VON KLENZE, VOSS; Assistant Professor EVANS.

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Greek

PROFESSOR CHARLES FORSTER SMITH

1. Elementary Greek. *M., Tu., W., Th., F., at* 8. *Two hours credit.*
2. Homer's Odyssey. *M., W., F., at* 9. *One hour credit.*
3. Euripides or Sophocles. *Tu., Th., at* 9, and another hour to be agreed upon. *One hour credit.*
4. Greek Literature (in English translations) and Greek Life. *Tu., Th., at* 11, *W., at* 4. *One hour credit.*

History

PROFESSOR MUNRO, PROFESSOR AMES OF THE UNIVERSITY OF PENNSYLVANIA; ASSOCIATE PROFESSOR SELLERY; ASSISTANT PROFESSOR PHILLIPS; AND MR. SCHOLZ

1. Greek History. *M., W., F., at* 10. *One hour credit.* Mr. SCHOLZ.
2. Roman History, to the Reign of Constantine. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Mr. SCHOLZ.
3. Medieval History, 800 to 1300. *M., Tu., W., Th., F., at* 9. *Two hours credit.* Associate Professor SELLERY.
4. American Colonial History. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Assistant Professor PHILLIPS.
5. Roman Imperial Institutions. *M., W., F., at* 9. *One hour credit.* Mr. SCHOLZ.
6. Medieval Education. *M., W., F., at* 10. *One hour credit.* Professor MUNRO.
7. Later Middle Ages. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Associate Professor SELLERY.
8. Political and Constitutional History of the United States (1786-1837). *M., Tu., W., Th., F., at* 9. *Two hours credit.* Professor AMES.
9. History of the Ante-Bellum South. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Assistant Professor PHILLIPS.
10. Modern Historians and their Methods. *M., W., F., at* 12. *One hour credit.* Professor MUNRO.
11. Seminary in Medieval History. *Th.,* 11 *to* 1. *One hour credit.* Professor MUNRO.
12. Seminary in American History. The Reconstruction Period. *Tu., Th., at* 11 *to* 12:30. *One or two hours credit.* Professor AMES.

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13. Methods of History Teaching. *Tu., Th., at* 10, *Tu., at* 12. *One hour credit.* Professor MUNRO.

Home Economics

MISS HUNTINGTON AND MISS DEMENT

1. Survey of Home Economics. *M., W., F., at* 8. *One hour credit.* Miss HUNTINGTON.
2. Food Materials. *Tu., W., Th.,* 9 *to* 11. Miss HUNTINGTON.
3. Household Decoration. *Tu., Th.,* 9 *to* 12. *One hour credit.* Miss DEMENT.

Latin

ASSISTANT PROFESSORS SHOWERMAN, FISKE; AND MR. COLBURN

1. Teachers' Course in Cicero. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Assistant Professor SHOWERMAN.
2. Elementary Latin. *M., Tu., W., Th., F.,* 8 *to* 10. *Four hours credit.* Mr. COLBURN.
3. Latin Satirists of the Empire. *M., Tu., W., Th., F., at* 9. *Two hours credit.* Assistant Professor FISKE.
4. Latin Comedy. *M., W., F., at* 11. *One hour credit.* Assistant Professor SHOWERMAN.
5. Latin Syntax and Composition for Teachers. *M., W., F., at* 8. *One hour credit.* Assistant Professor FISKE.
6. Latin Literature for Teachers. *Tu., Th., at* 8, with an additional hour to be fixed. *One hour credit.* Assistant Professor FISKE.

Manual Arts

PROFESSOR PHILLIPS; MR. MILLAR, MISS DEMENT, AND SUPERINTENDENT STEEN AND ASSISTANTS

1. Elements of Drawing I. *M., Tu., W., Th., F.,* 2 *to* 5. Professor PHILLIPS.
2. Elements of Drawing II. *M., Tu., W., Th., F.,* 2 *to* 5. *Three hours credit.* Professor PHILLIPS.
3. Descriptive Geometry. *Hours to be arranged. Three hours credit.* Mr. MILLAR.
4. Shop Work. Superintendent STEEN and assistants.
5. Principles of Design. *M., Tu., W., Th., F., at* 4 *to* 6. Miss DEMENT.
6. Conference.

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Mathematics

PROFESSOR SLICHTER; ASSISTANT PROFESSOR SKINNER; MR. DUVAL, AND MR. UNDERHILL.

1. Algebra. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Professor SLICHTER.
2. Solid Geometry. *M., Tu., W., Th., F., at* 12. Assistant Professor SKINNER.
3. Plane Trigonometry and Logarithms. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Mr. DUVAL.
4. Analytic Geometry. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Mr. UNDERHILL.
5. Calculus. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Mr. UNDERHILL.
6. Graphic Methods and Practical Calculations. *M., W., F., at* 9. *One hour credit.* Professor SLICHTER.
7. Theory of Complex Numbers and Algebraic Equations of One Variable. *Tu., Th., at* 9, and a third hour to be assigned. *One hour credit.* Mr. DUVAL.
8. History of Mathematics. *M., W., F., at* 11. *One hour credit.* Professor SLICHTER.
9. Irrational Numbers. *Tu., Th., at* 11, and a third hour to be assigned. *One hour credit.* Assistant Professor SKINNER.
10. Definite Integrals. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Assistant Professor SKINNER.
11. Differential Equations. *M., Tu., W., Th., F., at* 12. *Two hours credit.* Mr. DUVAL.
12. Calculus of Variations. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Mr. UNDERHILL.

Meteorology

MR. BARTLETT OF THE U. S. WEATHER BUREAU

1. Elementary Meteorology. Lectures, *Tu., Th., at* 3. *Laboratory two hours or more per week. One hour credit.*

Public School Music

MR. DYKEMA

1. Public School Music, Elementary. *M., Tu., W., Th., F., at* 2. *Two hours credit.*
2. Public School Music, Advanced. *M., Tu., W., Th., F., at* 3. *Two hours credit.*

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3. History of Music. *M., Tu., W., Th., F., at* 12. *Two hours credit.*

Philosophy

PROFESSOR MC GILVARY AND ASSISTANT PROFESSOR DEARBORN

1. General Psychology. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Assistant Professor DEARBORN.
2. Modern Philosophy from the Renaissance to 1850. *M., Tu., W., Th., F., at* 9. *Two hours credit.* Professor MCGILVARY.
3. The Philosophy of the Last Half-Century. *M., W., F., at* 10. *One hour credit.* Professor MCGILVARY.

Physical Training

PROFESSOR ELSOM; ASSISTANT PROFESSOR ABBY SHAW MAYHEW, AND ASSISTANTS

1. Light Gymnastics. *M., Tu., W., Th., F., at* 12. Professor ELSOM.
2. Light Gymnastics. *M., Tu., W., Th., F., at* 12. Assistant Professor MAYHEW.
3. Swimming. Men's class, *Tu., Th., S., at* 5. Women's classes *M., W., F., at* 5 *and Tu., Th., S., at* 11. Professor ELSOM and assistants.
4. Aesthetic Gymnastics and Fancy Club Swinging. *M., Tu., W., Th., F., at* 11. Assistant Professor MAYHEW.
5. Corrective Gymnastics. *Tu., W., Th., at* 10. Assistant Professor MAYHEW.
6. First Aid to the Injured. *M., Tu., W., at* 4. Professor ELSOM.
7. Normal Course. *M., Tu., W., F., at* 9, *Th., at* 4. Professor ELSOM.

Physics

ASSISTANT PROFESSOR TAYLOR, DR. INGERSOLL, AND MR. TERRY

1. General Lectures. *M., Tu., W., Th., F., at* 12. *Two hours credit.* Dr. INGERSOLL.
2. General Laboratory Practice. *Ten hours per week.* One hour credit for each thirty hours of work performed. Mr. TERRY.
3. Advanced Laboratory Practice: Electricity and Magnetism. One hour credit for each thirty hours of work. Assistant Professor TAYLOR.

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4. Advanced Laboratory Practice: Heat. One hour credit for each thirty hours of work. Dr. INGERSOLL.
5. Lectures for High School Teachers. *M., Tu., W., Th., F., at* 5. Assistant Professor TAYLOR.

Political Economy

PROFESSORS ELY, SCOTT, BURCHELL, ROSS, AND MRS. ANNA GARLIN SPENCER OF THE NEW YORK SCHOOL OF PHILANTHROPY

1. Elements of Economics. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Professor SCOTT.
2. The Classical Economists. *M., Tu., W., Th., F., at* 9. *Two or three hours credit.* Professor SCOTT.
3. Monopolies and Trusts. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Professor ELY.
4. Distribution of Wealth. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Professor ELY.
5. General Sociology. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Professor ROSS.
6. The Economics and Sociology of Cities. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Professor ROSS.
7. Sociological Conference. *W., at* 12. Professor ROSS.
8. Methods of Social Service. *M., W., F., at* 9. *One hour credit.* Mrs. SPENCER.
9. Business Education in Public Schools. *M., W., F., at* 8. *One hour credit.* Professor BURCHELL.
10. Costs and Factory Systems. *Tu., Th., at* 8, with a third hour to be arranged. *One hour credit.* Professor BURCHELL.
11. Business Organization. *M., W., F., at* 9. *One hour credit.* Professor BURCHELL.
12. Business Management. *Tu., Th., at* 9, with a third hour. Professor BURCHELL.

Political Science

PROFESSOR REINSCH AND ASSISTANT PROFESSOR SCOTT

1. Elementary Law. *M., Tu., W., Th., F., at* 10. *Two hours credit.* Assistant Professor SCOTT.
2. American Party Government. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Assistant Professor SCOTT.
3. Oriental Politics. *M., Tu., W., Th., F., at* 9. *Two hours credit.* Professor REINSCH.

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4. History of Political Thought. *M., Tu., W., Th., F., at* 8. *Two hours credit.* Professor REINSCH.

Public Speaking

ASSISTANT PROFESSOR LYMAN

1. Composition of Public Addresses. *M., Tu., W., Th., F., at* 9. *Two hours credit.*
2. Practical Public Speaking. *M., Tu., W., Th., F., at* 10. *Two hours credit.*
3. Interpretative Reading. *M., W., F., at* 11. *One hour credit.*

Romance Languages

ASSISTANT PROFESSOR REED; MR. SCHLATTER, MR. COOL, AND MR. HERRICK

1. Beginners' French. *M., Tu., W., Th., F.,* 8 *to* 10. *Four hours credit.* Mr. COOL.
2. Second Semester French. *M., Tu., W., Th., F., at* 11. *Two hours credit.* Mr. SCHLATTER.
3. Advanced French. *M., W., F., at* 10. *One hour credit.* Mr. COOL.
4. Conversation. *M., Tu., W., Th., F., at* 9. *One hour credit.* Mr. HERRICK.
5. Grammar and Composition. *M., W., F., at* 12. *One hour credit.* Mr. COOL.
6. The French Novel and its Development in the Nineteenth Century. *M., W., F., at* 11. *One hour credit.* Assistant Professor REED.
7. French Comedy. Molière. *Tu., Th., at* 10, with a third hour to be arranged. *One hour credit.* Mr. SCHLATTER.
8. Old French. *M., Tu., W., Th., F., at* 12 (hour subject to wishes of class). *Two hours credit.* Assistant Professor REED.
9. Provençal. *M., Tu., W., Th., F., at* 8 (hour subject to wishes of class). *Two hours credit.* Assistant Professor REED.
10. Research Work. *Hours to be fixed.* Assistant Professor REED.
11. Elementary Spanish. *M., Tu., W., Th., F., at* 8; *M., W., F. at* 9. *Three hours credit.* Mr. SCHLATTER.
12. Spanish Literature. *Hours to be fixed.* Mr. COOL.
13. Advanced Italian. *Hours to be fixed.* Mr. SCHLATTER.

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Zoology

MR. WAGNER

1. General Zoology. Lectures *M.*, *F.*, *at* 8. Field work. *Two hours credit.*
2. Entomology. Lectures *Tu.*, *Th.*, *at* 8. Field work. *Two hours credit.*
3. Advanced Zoology. *Hours to be arranged. Credit according to work.*

COLLEGE OF LAW

PROFESSORS COOK, GILMORE, SMITH, AND PROFESSOR HAZELTINE OF CAMBRIDGE UNIVERSITY, ENGLAND

First Year

Common Law Pleading. Cases and Assigned Readings. *Eight hours a week; first five weeks.* Professor COOK.

Torts. Ames' and Smith's Cases on Torts. *Four hours a week; ten weeks.* Professor GILMORE.

Property I. Gray's Cases on Property, Vol. I, 2d edition. *Eight hours a week; second five weeks.* Professor HAZELTINE.

Second and Third Years

Bills and Notes. Huffcut's Cases on Negotiable Instruments. *Eight hours a week; first five weeks.* Professor SMITH.

Constitutional Law. McClain's Cases on Constitutional Law. *Four hours a week; ten weeks.* Professor GILMORE.

Quasi-Contracts. Scott's Cases on Quasi-Contracts. *Eight hours a week; second five weeks.* Professor COOK.

COLLEGE OF ENGINEERING

Chemical Engineering

PROFESSOR BURGESS, FOR CONSULTATION; ASSISTANT PROFESSOR DICKERMAN

1. Heat Values. Coals and other solid combustibles, fuel oils, and gases.
2. Fuel Analyses. Proximate and ultimate analyses.
3. Gas Analysis. Determination of composition, estimation of impurities.
4. Oil. Physical and chemical tests for determining quality.

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5. Theses. Seniors taking bachelor theses in the department may carry on their work in the Summer Session.
6. Research in Public Utilities. Investigations of certain problems relating to gas and electric service. Engineers and others of adequate preparation will be given every opportunity to familiarize themselves with, and, as far as feasible, to participate in these investigations.

Electrical Engineering

ASSISTANT PROFESSOR SCHUSTER, MR. PRICE, AND MR WICKENDEN

1. Electromagnetic Machinery.
2. Alternating Currents.
3. Illumination and Photometry.
4. Light Sources and Distribution.
5. Theses. Senior students will be permitted to do their theses in the Summer Session.

Hydraulic Engineering

PROFESSOR MEAD, FOR CONSULTATION; ASSISTANT PROFESSOR DAVIS, AND MR. AYERS

1. Weirs. The determination of weir constants under varying conditions.
2. Pipes. Investigation of the flow in pipes of different sizes, and of different materials.
3. Percolation. Investigation of the friction of water flowing through sand and gravel.
4. Water Wheels. Tests of turbines and tangential wheels under varying conditions.
5. Pumps. Tests of pumps, hydraulic rams, and air lifts.
6. Hydraulic laboratory methods. A limited number of lectures.
7. Theses. Engineering seniors will be permitted to do this work in the Summer Session.

Steam and Gas Engineering

PROFESSORS RICHTER AND WILMORE

1. Thermodynamics. A study of theory, with laboratory investigations.
2. Steam Boilers. Lectures and laboratory and commercial tests.

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3. Steam Engines and Steam Turbines. An advanced course in theory, with laboratory tests.
4. Valve Gears. Lectures on theory. Problems in the drafting room. Adjustment of valve gears of various types.
5. Gas Engines and Gas Producers. Theory and tests.
6. Refrigeration. Theory and laboratory tests of efficiency.
7. Compressed Air. Theory and operation of air compressors and pneumatic tools.
8. Fuels and Lubricants. Fuels and lubricants used in the operation of power plants.
9. Heating and Ventilation. Lectures on the principles, with laboratory tests.
10. Calibration of Instruments. Instruments required in power plant testing and their calibration.
11. Advanced Laboratory and Research Work. Advanced laboratory or research work, including senior theses.

Machine Design

PROFESSOR MACK

1. Mechanism. A study of the more important kinematic elements.
2. Machine Elements. The application of mathematical methods and strength of materials to the design of machine elements.
3. Design of Complete Machines. The student will design the complete machine and make a study of its method of manufacture.

Mechanical Drawing

PROFESSOR PHILLIPS AND MR. MILLAR

1. Elements of Drawing I.
2. Elements of Drawing II.
3. Descriptive Geometry. *One recitation and one three-hour drawing period daily.*

Applied Mechanics

MR. WITHEY AND MR. MILLER

1. Statics.
2. Strength of Materials.
3. Materials Laboratory. Testing and lectures on the properties of iron, steel, wood, brick, cement, and concrete.

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4. Laboratory Research. Opportunity will be afforded for special investigations, including senior theses.

Shop Work

SUPERINTENDENT STEEN, MR. DABNEY, MR. LOTTES, MR. PAYTON, MR. SLADKY, AND MR. WOOD

Elementary and advanced courses in the blacksmith shop, the wood shop, and the foundry.

SUMMER SCHOOL FOR ARTISANS AND APPRENTICES

This school of shop work and laboratory practice has been established for the benefit of machinists, carpenters, or sheet-metal workers; stationary, marine, or locomotive engineers; shop foremen and superintendents; superintendents of water-works, electric light plants, power stations, factories, large office and store buildings in cities, and for young men who wish to qualify themselves for such positions. The session is six weeks in length, being coincident with the Summer Session of the College of Letters and Science. The tuition fee is $15, to which are added small laboratory and shop fees. For circular address the Registrar.

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THE GRADUATE SCHOOL

FACULTY

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.

JOHN B. PARKINSON, A. M., Vice President. Emeritus Professor of Constitutional and International Law.

GEORGE C. COMSTOCK, Sc. D., LL. D., Director of the Graduate School. Professor of Astronomy.

T. S. ADAMS, Ph. D., Associate Professor of Political Economy.

A. S. ALEXANDER, F. H. A. S., M. D. C., Professor of Veterinary Science.

C. E. ALLEN, Ph. D., Assistant Professor of Botany.

S. M. BABCOCK, Ph. D., LL. D., Professor of Agricultural Chemistry.

C. R. BARDEEN, A. B., M. D., Dean of the College of Medicine. Professor of Anatomy.

ARTHUR BEATTY, Ph. D., Assistant Professor of English.

M. C. BEEBE, B. S., Associate Professor of Electrical Engineering.

E. A. BIRGE, Ph. D., Sc. D., LL. D., Dean of the College of Letters and Science. Professor of Zoology.

ELIOT BLACKWELDER, A. B., Assistant Professor of Geology.

W. G. BLEYER, Ph. D., Assistant Professor of English.

B. H. BODE, Ph. D., Assistant Professor of Philosophy.

H. C. BRADLEY, Ph. D., Assistant Professor of Physiological Chemistry.

D. E. BURCHELL, A. M., Professor of Business Administration.

C. F. BURGESS, E. E., Professor of Applied Electrochemistry.

C. H. BURNSIDE, M. A., M. S., Assistant Professor of Mechanics.

W. B. CAIRNS, Ph. D., Assistant Professor of American Literature.

VICTOR COFFIN, Ph. D., Assistant Professor of European History.

W. W. COOK, M. A., LL. M., Professor of Law.

J. R. COMMONS, A. M., Professor of Political Economy.

J. W. CUNLIFFE, D. Lit., Professor of English.

W. W. DANIELLS, M. S., Sc. D., Emeritus Professor of Chemistry.

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A. L. P. Dennis, Ph. D., Professor of European History.
R. H. Denniston, Ph. D., Assistant Professor of Botany.
T. H. Dickinson, Ph. D., Assistant Professor of English.
R. E. N. Dodge, A. M., Assistant Professor of English.
L. W. Dowling, Ph. D., Assistant Professor of Mathematics.
E. C. Elliott, Ph. D., Professor of Education.
R. T. Ely, Ph. D., LL. D., Professor of Political Economy.
O. H. Ensign, Professor of Electrical Engineering.
Joseph Erlanger, M. D., Professor of Physiology.
M. B. Evans, Ph. D., Assistant Professor of German.
E. H. Farrington, M. S., Professor of Dairy Husbandry.
Richard Fischer, Ph. C., Ph. D., Assistant Professor of Pharmacy.
C. R. Fish, Ph. D., Associate Professor of American History.
G. C. Fiske, Ph. D., Assistant Professor of Latin.
J. C. Freeman, LL. D., Professor of English Literature.
W. D. Frost, Ph. D., Associate Professor of Bacteriology.
Lucy M. Gay, B. L., Assistant Professor of Romance Languages.
W. F. Giese, A. M., Associate Professor of Romance Languages.
E. A. Gilmore, B. A., LL. B., Professor of Law.
S. H. Goodnight, Ph. D., Assistant Professor of German.
R. A. Harper, Ph. D., Professor of Botany.
E. B. Hart, Ph. D., Professor of Agricultural Chemistry.
E. G. Hastings, M. S., Assistant Professor of Agricultural Bacteriology.
C. H. Hawes, M. A., Lecturer in Anthropology.
W. A. Henry, D. Agr., Sc. D., Emeritus Professor of Agriculture.
A. R. Hohlfeld, Ph. D., Professor of German.
S. J. Holmes, Ph. D., Assistant Professor of Zoology.
F. G. Hubbard, Ph. D., Professor of the English Language.
G. C. Humphrey, B. S., Professor of Animal Husbandry.
Joseph Jastrow, Ph. D., Professor of Psychology.
Louis Kahlenberg, Ph. D., Professor of Chemistry.
Alexander Kerr, A. M., Emeritus Professor of the Greek Language and Literature.
Edward Kremers, Ph. G., Ph. D., Professor of Pharmaceutical Chemistry.
A. G. Laird, Ph. D., Associate Professor of Greek and Comparative Philology.
H. B. Lathrop, A. B., Associate Professor of English Literature.
C. K. Leith, Ph. D., Professor of Geology.
Victor Lenher, Ph. D., Professor of Chemistry.

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M. O. LORENZ, Ph. D., Assistant Professor of Political Economy.
R. L. LYMAN, A. B., Assistant Professor of Rhetoric and Oratory.
W. S. MARSHALL, Ph. D., Associate Professor of Entomology.
E. R. MAURER, B. C. E., Professor of Mechanics.
CHARLES MCCARTHY, Ph. D., Lecturer in Political Science.
E. B. MCGILVARY, Ph. D., Professor of Philosophy.
D. W. MEAD, C. E., Professor of Hydraulic and Sanitary Engineering.
C. E. MENDENHALL, Ph. D., Professor of Physics.
*B. H. MEYER, Ph. D., Professor of Political Economy.
W. S. MILLER, M. D., Associate Professor of Anatomy.
R. A. MOORE, Professor of Agronomy.
D. C. MUNRO, A. M., Professor of European History.
J. M. OLIN, M. A., LL. B., Professor of Law.
J. E. OLSON, B. L., Professor of Scandinavian Languages and Literature.
J. B. OVERTON, Ph. D., Assistant Professor of Botany.
M. V. O'SHEA, B. L., Professor of the Science and Art of Education.
D. H. OTIS, M. S., Associate Professor of Animal Nutrition.
E. T. OWEN, Ph. D., Professor of French and Linguistics.
W. D. PENCE, C. E., Professor of Railway Engineering.
U. B. PHILLIPS, Ph. D., Assistant Professor of American History.
J. F. A. PYRE, Ph. D., Assistant Professor of English Literature.
M. P. RAVENEL, M. D., Professor of Bacteriology.
F. O. REED, Ph. D., Assistant Professor of Romance Languages.
P. S. REINSCH, Ph. D., Professor of Political Science.
H. S. RICHARDS, LL. D., Dean of the College of Law. Professor of Law.
A. W. RICHTER, M. M. E., Professor of Experimental Engineering.
E. C. L. C. ROEDDER, Ph. D., Assistant Professor of German Philology.
E. A. ROSS, Ph. D., Professor of Sociology.
H. L. RUSSELL, Ph. D., Dean of the College of Agriculture.
E. P. SANDSTEN, Ph. D., Professor of Horticulture.
W. A. SCOTT, Ph. D., Professor of Political Economy.
G. C. SELLERY, Ph. D., Associate Professor of European History.
F. C. SHARP, Ph. D., Professor of Philosophy.
GRANT SHOWERMAN, Ph. D., Assistant Professor of Latin.

*On leave of absence.

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J. W. SHUSTER, B. S., Assistant Professor of Electrical Engineering.
E. B. SKINNER, Ph. D., Assistant Professor of Mathematics.
M. S. SLAUGHTER, Ph. D., Professor of Latin.
C. S. SLICHTER, M. S., Professor of Applied Mathematics.
C. F. SMITH, Ph. D., Professor of Greek and Classical Philology.
H. A. SMITH, M. A., Professor of Romance Languages.
H. L. SMITH, B. A., LL. B., Professor of Law.
L. S. SMITH, C. E., Associate Professor of Topographic and Geodetic Engineering.
W. M. SMITH, B. A., Librarian.
B. W. SNOW, Ph. D., Professor of Physics.
S. E. SPARLING, Ph. D., Assistant Professor of Political Science.
SUSAN A. STERLING, M. L., Assistant Professor of German.
C. W. STODDART, A. M., Assistant Professor of Soils.
A. H. TAYLOR, B. S., Assistant Professor of Physics.
H. C. TAYLOR, Ph. D., Associate Professor of Political Economy.
H. J. B. THORKELSON, M. E., Assistant Professor of Steam Engineering.
F. E. TURNEAURE, C. E., Dr. Eng., Dean and Professor of Engineering.
F. J. TURNER, Ph. D., Professor of American History.
E. B. VAN VLECK, Ph. D., Professor of Mathematics.
E. K. J. H. VOSS, Ph. D., Professor of German Philology.
J. H. WALTON, Jr., Ph. D., Assistant Professor of Chemistry.
A. R. WHITSON, B. S., Professor of Soils.
W. H. WILLIAMS, A. B., Professor of Hebrew and Hellenistic Greek.
A. W. WINCHELL, Dr. Univ. of Paris, Assistant Professor of Mineralogy and Petrology.
F. W. WOLL, Ph. D., Professor of Agricultural Chemistry.

Instructors and Assistants

B. M. ALLEN, Ph. D., Instructor in Anatomy.
KATHERINE ALLEN, Ph. D., Instructor in Latin.
A. L. BRESLICH, Ph. D., Instructor in Hellenistic Greek.
FRIEDRICH BRUNS, M. A., Instructor in German.
E. A. COOK, B. L., Instructor in English.
C. D. COOL, M. A., Instructor in Romance Languages.
R. D. HALL, Ph. D., Instructor in Chemistry.
J. F. HAUSSMANN, Ph. D., Instructor in German.
L. R. INGERSOLL, Ph. D., Instructor in Physics.

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A. H. JOHNSTONE, B. A., Instructor in Public Speaking.
E. R. JONES, B. S. A., Instructor in Soils and Drainage.
F. T. KELLY, Ph. D., Instructor in Hebrew and Hellenistic Greek.
J. L. KIND, Ph. D., Instructor in German.
W. F. KOELKER, Ph. D., Instructor in Organic Chemistry.
W. G. MARQUETTE, Ph. D., Instructor in Botany.
LAWRENCE MARTIN, M. A., Instructor in Geology.
ELMER MCCOLLUM, Ph. D., Instructor in Agricultural Chemistry.
F. M. MCCULLOUGH, C. E., Instructor in Mechanics.
D. L. PATTERSON, B. S., Instructor in History.
J. R. PRICE, B. S., Instructor in Electrical Engineering.
W. H. PRICE, Ph. D., Instructor in Political Economy.
EDUARD PROKOSCH, Ph. D., Instructor in German.
E. B. SCHLATTER, M. A., Instructor in Romance Languages.
R. F. SCHOLZ, M. A., Instructor in European History.
L. P. SHANKS, A. M., Instructor in Romance Languages.
E. M. SHEALY, B. S., Instructor in Steam Engineering.
E. M. TERRY, A. M., Instructor in Physics.
W. E. TOTTINGHAM, B. S., Instructor in Agricultural Chemistry.
C. T. VORHIES, B. S., Assistant in Zoology.
GEORGE WAGNER, M. A., Instructor in Zoology.
J. W. WATSON, B. S., Instructor in Electrical Engineering.
O. P. WATTS, Ph. D., Instructor in Applied Electrochemistry.
W. E. WICKENDEN, B. S., Instructor in Electrical Engineering.
M. O. WITHEY, C. E., Instructor in Mechanics.
C. D. ZDANOWICZ, Ph. D., Instructor in Romance Languages.

THE GRADUATE COMMITTEE

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
GEORGE C. COMSTOCK, Sc. D., LL. D., Chairman and Director of the Graduate School. Director of Washburn Observatory and Professor of Astronomy.
CHARLES R. BARDEEN, A. B., M. D., Dean of the College of Medicine. Professor of Anatomy.
EDWARD A. BIRGE, Ph. D., Sc. D., LL. D., Dean of the College of Letters and Science. Professor of Zoology.
CHARLES F. BURGESS, E. E., Secretary. Professor of Applied Electrochemistry.
RICHARD T. ELY, Ph. D., LL. D., Professor of Political Economy.
LOUIS KAHLENBERG, Ph. D., Professor of Physical Chemistry.

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PAUL S. REINSCH, Ph. D., Professor of Political Science.
HARRY S. RICHARDS, LL. D., Dean of the College of Law. Professor of Law.
HARRY L. RUSSELL, Ph. D., Dean of the College of Agriculture.
MOSES S. SLAUGHTER, Ph. D., Professor of Latin.
CHARLES S. SLICHTER, M. S., Professor of Applied Mathematics.
FREDERICK E. TURNEAURE, C. E., Dr. Eng., Dean of the College of Engineering. Professor of Engineering.
FREDERICK J. TURNER, Ph. D., Professor of American History.
ANDREW R. WHITSON, B. S., Professor of Soils.

GENERAL STATEMENT

The University of Wisconsin is a part of the system of public instruction provided by the State, but is open to all properly qualified students without regard to state lines. The students of the Graduate School are largely from other educational institutions located in many states, although, as is the case elsewhere, many of them come from the University's own undergraduate departments. It is the aim of the University to offer the opportunities for advanced instruction and research to as wide a constituency as possible. No limitations are placed upon a student's freedom in research and in the expression of his conclusions upon subjects which he is prepared to treat. The University avoids all that is partisan in politics and sectarian in religion, without debarring its members from investigation and activity in any field.

ORGANIZATION

Prior to 1895 the graduate work of the University was conducted by its several departments of instruction without further cooperation than is implied in their relations to the University as a whole. The development of this work, however, led to its organization, in 1895, as a Department of Graduate Study, and in 1904 it was advanced to the status of a Graduate School, the administration of which was entrusted to a committee of the University Faculty called the Administrative Committee of the Graduate School. The Chairman of this committee was in 1906 made Director of the Graduate School. He is charged with general supervision of all graduate students, and is the medium of communication between such students and the University administration. The faculty of the Graduate School includes all heads of University departments in which graduate work is offered, and

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all members of the instruction staff of the University in charge of graduate courses.

AIMS AND METHODS

The Graduate School aims to serve the needs of young men and women of college training who desire a larger and more thorough acquaintance with the scholarship and research of the world than can be obtained in the current undergraduate courses. It seeks to awaken in the minds of capable men and women an appreciation of high scholarship, research, and the advancement of learning, to the end that they may effectively aid, not only in the promulgation of academic instruction, but also in extending the boundaries of knowledge. Although the work of the Graduate School is in large part planned with reference to the needs of those who desire to fit themselves for the higher positions in the work of education, and who as preparation for this work seek to specialize along definite lines, the opportunities of the School are open to others as well.

The University aims to give advanced instruction of a high character in each department of its Graduate School, but the scope, form, and methods of this instruction are determined independently within each department. Lectures, laboratories, and the seminary method are largely employed, and especial emphasis is everywhere laid upon bringing the graduate student into contact with the research problems of his department of study. To this end able students share in the investigative work of their instructors, and are encouraged to acquire the spirit as well as the methods of productive work. Provision has been made by the University for the publication under its auspices of the results of especially meritorious work of this kind, and doctor's theses of more than common merit are occasionally thus published. For information concerning the publications of the University, see the Appendix to this catalogue.

CLUBS AND SOCIETIES

To promote interest in problems of scholarship and investigation, and for training in the presentation of results, numerous voluntary clubs and societies have been established by instructors and students in the Graduate School. Among these are:

THE SCIENCE CLUB,

THE CLASSICAL CLUB,

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THE LANGUAGE AND LITERATURE CLUB,
THE HISTORICAL CONFERENCE,
THE FRENCH CLUB,
THE GERMAN JOURNAL CLUB,
THE CHEMICAL CLUB,
THE BIOLOGICAL CLUB,
THE MATHEMATICAL CLUB,
THE WISCONSIN SECTION OF THE AMERICAN CHEMICAL SOCIETY,
THE UNIVERSITY OF WISCONSIN BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS,
THE UNIVERSITY OF WISCONSIN SECTION OF THE AMERICAN ELECTROCHEMICAL SOCIETY.

The GRADUATE CLUB, while sharing in these purposes, is primarily a social organization for the promotion of acquaintance and good fellowship among graduate students and members of the faculty.

FELLOWSHIPS AND SCHOLARSHIPS

University Fellowships

For the purpose of promoting higher scholarship and research the Regents of the University have established sixteen University Fellowships of the annual value of $400 each. These are allotted to the several departments of instruction as follows:

To Political Economy, two; to History, two; to Geology and the Biological Sciences, two; to the following departments and groups of departments one each, viz: Political Science, Sociology, Latin, Greek, German, Romance Languages, Chemistry, Physics, Mathematics and Astronomy, Philosophy and Education.

To the above should be added an endowed fellowship in English specially described upon a following page.

The following are the regulations respecting these fellowships:

1. Any fellowship to which the present regulations apply may be held by any graduate of a college of recognized standing or by anyone whose education is equivalent to that represented by a college degree. Those about to take such a degree are eligible as candidates, the regulations applying to the time of entrance upon the duties of the fellowship. Men and women are equally eligible.

2. Fellowships will be granted upon application only, which should be made upon a special blank form furnished by the Registrar of the University; such application, with accompanying evidence of merit, attainment, and ability, to be in the hands of the President before March 1st of the collegiate year preceding that during which the fellowship is held.

3. All fellowships will be filled each year. Fellows may be re-elected for one additional year only.

4. Application must be accompanied by evidence of scholarship, ability and general worthiness; such as theses (whether prepared for

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this or other purposes), published writings, testimonials from instructors, outline of educational course pursued, special distinctions gained, and the like. Applications for reappointment should contain a full account of the work of the preceding year. Applications, to receive attention, must contain a definite statement of the special studies which the applicant intends to pursue.

5. Each fellow shall pursue his studies under the direction of the professor or professors in charge of his special studies. Assignment of University services to the fellows shall be made by the President in consultation with the head of the department to which the fellow has been assigned, and the work assigned may be equivalent to one hour of teaching daily, or the supervision of laboratory work for two hours daily. It is stipulated that the holder of the Sociology fellowship shall do work at the University Settlement in Milwaukee.

6. Vacancies in fellowships, due to resignation or other cause, may be filled as they occur, at the option of the Faculty.

Honorary Fellowships

The Regents have established honorary fellowships, equal in number to the regular fellowships, and filled in a similar way. They are restricted, however, to persons who have already held academic honors, such as fellowships. No compensation is attached to these positions except the remission of University fees, and no teaching service is required; but to be eligible to an honorary fellowship one must be a graduate of at least one year's standing.

The Mary M. Adams Graduate Fellowship in English

By will the late Charles Kendall Adams, formerly President of the University, conveyed the larger part of his estate to the Regents of the University for the gradual establishment of fellowships in Modern History, Greek and in the English Language and Literature. The first of these fellowships, the Mary M. Adams Graduate Fellowship in English Language and Literature became available in the academic year 1906-07, since which time the annual amount paid to the incumbent has ranged from $450 to $500.

Graduate Scholarships

The Regents of the University maintain fourteen graduate scholarships of the value of $225 each. Two of these are designated for Economics, one for Political Science, one for European history, one for American history, and three for Engineering. Appointments to these scholarships are made in the same manner as appointments to fellowships, but, by special provision, authority is conferred upon the faculties of Lawrence University, of Ripon College, of Milwaukee Downer College, and of Beloit College to nominate annually to the faculty of the University of Wiscon-

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sin one member of their respective senior classes as a suitable candidate for a University scholarship. Such candidates, when duly appointed by the Regents of the University, shall be in all respects upon the same footing as other University scholars.

Through the generosity of friends of the University, there have been established the following scholarships, whose annual values fluctate slightly from year to year, but which are approximately as stated below:—

The Henry Gund Graduate Scholarship in the Department of German, of the annual value of $225.

The F. W. Allis Graduate Scholarship in Germanic Philology, of the annual value of $150.

All fellows and University scholars are required to pay the regular incidental fee, but are exempt from the non-resident tuition fee.

ADMISSION TO THE GRADUATE SCHOOL

Graduates from four-year courses of study in any approved university or college will be admitted to the Graduate School without examination, but will not be considered as candidates for a higher degree until announcement of such candidacy has been made to the Director of the Graduate School. Each applicant for admission to the Graduate School should, in person, present his college diploma to the University Registrar, who will admit him to the University and will furnish a statement of fees to be paid at the Regents' office. This statement serves also as a certificate of enrollment in the Graduate School, and should be presented promptly to the Director, at Room 118, University Hall, who will issue to the student an election card for presentation to the several instructors under whom he desires to study. Students already enrolled in the Graduate School should obtain from the Director an election card at or before the beginning of each semester. (For a statement of fees to be paid in the Graduate School see Index.)

ASSIGNMENT OF STUDIES

The election card should be presented first to the instructor under whom the student's principal work is to be done, designated his major professor, who will advise with regard both to the courses of major study and to the subordinate studies that may be combined advantageously with the major. The studies thus

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determined will be entered upon the election card, which must be signed by the instructor in charge of the major and endorsed with the approval of each other instructor with whom work is to be taken. The completed card should be submitted in person to the Director of the Graduate School as soon as possible after the opening of the semester. The student's registration is not complete until the election card has been thus submitted to and approved by the several officers above named and returned to the Director.

Graduate students are invited to confer freely with the Director of the Graduate School in all matters concerning their relations to the University.

CANDIDACY FOR DEGREES

Candidates for all higher degrees are required to make application for admission to candidacy for the proposed degree. Such application should be made to the Director of the Graduate School at least seven months prior to the date at which the examinations for the degree are to be taken, and may be made, with advantage to the student, at an earlier date.

SECOND DEGREES

The University of Wisconsin confers the following second degrees: *Master of Arts, Master of Science, Master of Philosophy, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer.*

These degrees are conferred in accordance with the conditions set forth below, upon graduates of the University of Wisconsin and upon graduates of other institutions of learning whose train ing has been substantially equivalent to that represented by the baccalaureate degree of the University of Wisconsin. The University will determine this substantial equivalence of training by such methods as seem best adapted to each case, and may impose upon any candidate such additional requirements as seem needful and just; its judgment in this respect being determined by the actual attainments of the candidate rather than by the institution at which he has previously studied.

The degree, *Master of Arts*, is conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, Bachelor of Arts, as conferred by the University of Wisconsin, and whose graduate studies are non-professional in character.

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The degree, *Master of Science* and the second degrees in engineering are respectively conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, Bachelor of Science, as conferred by the University of Wisconsin. The degree, *Master of Philosophy* is conferred only upon those candidates who have received from the University of Wisconsin the degree, Bachelor of Philosophy.

Candidacy for the above degrees is normally based upon resident study at the University, but in a considerable class of cases provision is made whereby a measure of credit is extended to work done *in absentia*. In no case, however, will a master's degree be conferred without the equivalent of one semester of resident study at the University of Wisconsin.

The following regulations for the attainment of second degrees apply to all candidates in residence:

1. During a period of at least one academic year the candidate must pursue a course of graduate study characterized by definiteness of purpose and approved by the University as appropriate to that purpose and suitable in amount. Such a course includes normally from nine to twelve unit-hours of graduate work for each semester, of which at least one-half must lie in a single department. The undergraduate preparation of the candidate must be sufficient to satisfy the instructor that the advanced work may be profitably undertaken. Undergraduate courses not listed for graduate credit, may be elected in addition to the normal amount of graduate work, provided that the recommendation of the professor in charge of the student's major and the approval of the Director of the Graduate School be obtained in advance.

2. Students who during their candidacy for the master's degree are engaged in teaching, or other remunerative employment, will be required to devote to their studies such period longer than one year as may be designated by the Graduate Committee.

3. For students seeking to specialize in a definite line of study the preparation of a thesis may be required and, subject to the approval of the professor in charge, such thesis work may be elected by others. If elected, a typewritten copy of the completed thesis, bearing the approval of the professor under whom it is taken, must be filed with the Librarian of the University on or before June 1 of the year in which the degree is to be conferred.

4. The candidate must sustain an oral examination upon the graduate work offered in support of his candidacy. Subject to the

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approval of the President of the University, the time and place of this examination will be determined and the examining committee appointed by the Director of the Graduate School.

Second Degrees in Engineering

The degrees, *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer and Chemical Engineer* will be conferred:

(a) Upon graduates of approved institutions who have completed suitable undergraduate courses and who pursue one year of advanced engineering study at the University of Wisconsin, in accordance with the rules above set forth for the attainment of second degrees.

(b) Upon graduates of the College of Engineering of the University of Wisconsin who have spent three years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

Second Degrees for Students in Professional Colleges

Graduates of approved institutions who are regularly enrolled in the professional colleges of this University may supplement their professional studies by work taken in the Graduate School. Upon the completion of an approved course of study they will be admitted to examination for the master's degree, to be conferred at the time of their graduation from the professional college. The course of study thus prescribed for the attainment of the master's degree may be expected, normally, to require one-third of the student's time for a period of two years.

CANDIDATES FOR THE MASTER'S DEGREE PARTLY IN ABSENTIA

Candidates for the master's degree who are graduates of the University of Wisconsin may be permitted, by vote of the Graduate Committee, to do one-half of this work *in absentia*.

By consent of the departments concerned any person, whether a graduate of the University of Wisconsin or not, otherwise eligible to candidacy for a second degree and who has done satisfactory graduate work during one Summer Session of the University, may be admitted to candidacy for a master's degree upon the following terms:

1. The candidate must conform to all of the above regu'a-

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tions for candidates for the master's degree with exception of the requirement of residence for one year.

2. During a period of two consecutive years, while not in residence at the University, the candidate must pursue a course of advanced study previously arranged and approved by some department of the University. This work is designated his major study, and during two Summer Sessions, in addition to the one above named, he must pursue, at the University, work in continuation of, or collateral to, this major; for example, laboratory or seminary work in the department in which the major is taken.

3. As some departments of the University do not concede the privilege of candidacy *in absentia*, the applicant for this privilege must arrange in advance with the department concerned, for its approval of the proposed work and must show that he has access to adequate facilities for its prosecution. Continuous supervision by the University cannot, in general, be given to work done *in absentia*, and its amount and character must be shown by examination at the University.

THE DOCTOR'S DEGREE

The degree of *Doctor of Philosophy* will be conferred upon successful candidates after not less than three years of graduate study, of which either the first two years or the last year must be spent at this University. The degree is not conferred solely as the result of faithful study extending over any prescribed period. Special attainments are required from all candidates for this degree, particularly the power of independent investigation, shown by the production of a thesis embodying original research or creative scholarship, presented with a fair degree of literary skill.

The attention of graduate students is called to the following regulations respecting candidacy for the doctor's degree.

1. Candidates for this degree are required to select as a principal line of study some definite department of knowledge, with whose entire extent they must become familiar, in general terms, and with some part of which (the one in which the thesis falls), they must acquire a detailed acquaintance. The group of studies thus contemplated is designated the student's major subject, and it is expected that work upon his subject will cover not less than three years of graduate study. This group of studies may be divided among several instructors, one of whom, designated as in

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charge of the major, will act as the student's adviser in the selection and arrangement of topics constituting the major, and in the selection of two minor courses of study. Work in the first of these minors will ordinarily extend over a period of two years, and in the second minor over a period of one year. At least one of these minors must be taken in a department other than that in which the major lies, and no two of the three subjects may be taken in chief part under the same instructor.

2. Not later than November 1 of the academic year in which the doctor's degree is to be taken, each candidate for the degree must submit to the Graduate Committee certificates from the departments of French and German of the University of Wisconsin, showing that he possesses a sufficient reading knowledge of these languages to use them for purposes of research in his major study.

3. On or before the same date, November 1, the candidate must file with the Director of the Graduate School his formal application to be admitted to candidacy for the doctor's degree. This application must set forth, subject to future verbal amendment, the title of the proposed thesis, and the approval of this title by the instructor in charge of the major. A blank for this purpose will be furnished by the University.

4. Each candidate for the doctor's degree must sustain an oral examination upon his thesis and upon the general work covered by his major and minor subjects, but a special written examination upon the second minor may be substituted for the oral examination upon the recommendation of the instructor in charge.

5. A fair copy of the thesis with an abstract of the same must be submitted to the Director of the Graduate School three weeks before the final oral examination is held. In exceptional cases, by consent of the Graduate Committee and upon the recommendation of the professor in charge of the major, the candidate for the doctor's degree may be permitted to take the general examination prior to the approval of the thesis, but the degree will not be conferred until the candidate has passed an oral examination upon the special field of his thesis, to be held when the thesis is approved.

6. Subject to the approval of the President of the University, the Director of the Graduate School will appoint an examining committee, usually composed of four persons, and will designate a time and place for the examination.

7. The successful candidate is required to put his thesis into

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print and to deposit *one hundred copies* of the same in the University Library. If the thesis is printed in a journal, or as a bulletin, reprints will be accepted for the library, but these must be provided with a special cover and title page in proper thesis form. The diploma may be conferred before the thesis is printed, provided a written or typewritten copy bearing the approval of the Graduate Committee is deposited with the University Librarian, and the sum of fifty dollars is deposited with the Secretary of the Regents, as a guaranty of subsequent publication. This deposit will be refunded on presentation of the printed copies to the University Librarian.

FEES AND EXPENSES

Graduate students, including those working under supervision *in absentia*, pay the same fees as undergraduates in the College of Letters and Science. See Index, under Fees and Expenses.

COURSES FOR GRADUATES

In all of the departments of the University courses are offered for undergraduates and graduates, and in many of them, courses primarily for graduates. These courses are described under the above headings in the departments of study in which they are offered in the College of Letters and Science, the College of Engineering, and the College of Agriculture.

GRADUATE CIRCULAR

The special announcement of the Graduate School for 1908-09, giving detailed information concerning the school, may be obtained upon application to the Registrar of the University.

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THE COURSE FOR THE TRAINING OF TEACHERS

Officers of Administration

CHARLES R. VAN HISE, Ph. D., LL. D., President of the University.
E. A. BIRGE, Ph. D., Sc. D., LL. D., Dean of the College of Letters and Science.

Committee of Administration

EDWARD C. ELLIOTT, Ph. D., Chairman, Professor of Education.
J. W. CUNLIFFE, D. Litt., Professor of English.
M. B. EVANS, Ph. D., Assistant Professor of German.
R. A. HARPER, Ph. D., Professor of Botany.
VICTOR LEHNER, Ph. D., Professor of Chemistry.
D. C. MUNRO, A. M., Professor of European History.
F. C. SHARP, Ph. D., Professor of Philosophy.
M. S. SLAUGHTER, Ph. D., Professor of Latin.
C. S. SLICHTER, Ph. D., Professor of Applied Mathematics.
H. K. BASSETT, B. S., Secretary, Lecturer in Education.

GENERAL STATEMENT

The preparation of men and women for service as supervisors and directors of public educational work and, in particular, as teachers in the public secondary schools of the state, has been one of the important functions of the University, since the time of its foundation. For more than twenty years, a department of Education has been maintained in order to provide that opportunity for distinctly professional study deemed necessary for the adequate equipment of those looking forward to teaching as a career. In addition, the University has demanded of its graduates the satisfactory completion of academic and professional courses to a specified amount before the adequacy of preparation to teach would be approved. Moreover, the state of Wisconsin has recognized by statute this academic and professional training received by the graduates of the University as equivalent to the

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fulfillment of the legal qualifications to teach in the public schools of the state.

In order to provide for the further development of those several activities comprising the work of the University for the preparation of teachers and to contribute to the improvement of the standards of teaching, especially in the secondary schools of the state, the special course for the training of teachers was established, February, 1908.

The course for the training of teachers is intended to prepare students for teaching and supervising instruction, particularly in the public high schools of the state. This preparation rests upon the basis of a sound general education, and consists in addition, of the following principal parts: (1) academic instruction in the subjects to be taught; (2) professional training by means of (a) departmental teachers courses, and (b) courses in the departments of Education and Philosophy, accompanied by observational work in selected schools. In order to correlate the several means of instruction, and secure adequate provision for their efficient maintenance, the course is placed in charge of a standing Committee of the Faculty, the Chairman of which serves in an executive capacity.

The demands made upon teachers under modern educational conditions render it highly desirable that they should have one year of graduate study in addition to the ordinary four years of college work. Where this is not possible, they are strongly recommended to take the two summer sessions, or one semester of advanced study, entitling them to the special certificate, of which particulars are given below. Provision is, however, made for a course to be completed during the four years of undergraduate study, embodying the features outlined above, and leading to the University Teachers Certificate.

UNDERGRADUATE COURSE FOR THE TRAINING OF TEACHERS

The Undergraduate Course for the Training of Teachers is designed to meet the needs of those students who during the period of undergraduate study desire to prepare themselves for teaching. For these students, provision is made for such a correlation of academic and professional study as will meet the minimum requirements for teaching.

ADMISSION AND REGISTRATION.—1. To become a candidate for

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the University Teachers' Certificate, a student must, at the beginning of the senior year, in addition to the usual registration, register in the Course For the Training of Teachers.

2. Eacn registrant must indicate for the joint approval of the student's major adviser and the Chairman of the Committee, the subject or subjects, preparation for the teaching of which is contemplated. In no case will more than three *related* subjects be approved. (A major subject; a major and one minor subject; a major and two minor subjects.)

REQUIREMENTS FOR COMPLETION.—1. Satisfactory fulfillment of the requirements of preparation for the teaching of either:

(a) A major subject; or

(b) A major subject and one minor subject; or,

(c) A major subject and two minor subjects.

2. To fulfill the requirements of preparation for the teaching of the selected *major* subject, a student must earn a total of not less than *twenty* unit-hours of credit; and, in addition, credit for the departmental teachers course in such major subject. (See below, Departments of Instruction for the credit requirements prescribed by the different departments.)

3. To fulfill the requirements of preparation for the teaching of the selected *minor* subject or subjects, a student must earn a minimum of *ten* unit hours of credit in each minor subject. This minimum shall not include any departmental teachers course. (See below, Department of Instruction for the credit requirements prescribed by the different departments.)

4. In addition to the specified requirements for the major and minor subjects, a student must fulfill the requirements for the University Teachers Certificate, defined by the action of the faculty of the University, June 3, 1907, as follows:

The requirements for the Teachers' Certificate shall consist, in addition to the work done in the major subject and other work, of twelve hours, to be divided as follows: Psychology, three hours; one Departmental Teachers' Course, two hours; Education, seven hours, including an option of two hours in a teachers' course in a second department. (See Index, under Teachers Certificate.)

5. Upon the fulfillment of the foregoing requirements a student shall be recommended by the Chairman of the Committee to the President of the University, to receive the certified statement prescribed by section 458b-2 of the Laws of Wisconsin.

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This certified statement shall indicate the subject, or subjects, the requirements for the teaching of which have been fulfilled. All students receiving the University Teachers Certificate after June, 1908, must comply with the requirements of the Undergraduate Course for the Training of Teachers.

ADVANCED COURSE FOR THE TRAINING OF TEACHERS

The Advanced Course For the Training of Teachers is designed to meet the needs of those students who desire a more intensive preparation for teaching than that provided for by the Undergraduate Course. As planned at the present time, the special advanced study may be accomplished during one semester of graduate work or through work during two summer sessions.

ADMISSION AND REGISTRATION.—1. Any student eligible to graduate standing in the University, may, upon the recommendation of the departments concerned and the Chairman of the Committee, be permitted to register in the Advanced Course For the Training of Teachers. Provided, that the previous preparation of the student contains an amount of professional study equivalent to that specified in paragraph 4 of the requirements indicated for the completion of the Undergraduate Course For the Training of Teachers.

2. Any student eligible for entrance to graduate standing in the University, whose previous preparation *does not* contain an amount of *professional* study equivalent to that specified in paragraph 4 of the requirements indicated for the completion of the Undergraduate Course For the Training of Teachers, may, upon the recommendation of the departments concerned, and the Chairman of the Committee, be permitted to register in the Advanced Course For the Training of Teachers. Provided, that such student must complete, in addition to the indicated requirements of the Advanced Course, an equivalent of such deficiency.

3. Any student who has completed the work of the Junior year of any of the Colleges of the University, may, upon the joint recommendation of the department concerned and the Chairman of the Committee, be permitted to register in the Advanced Course For the Training of Teachers, during the following summer session. Under ordinary conditions the requirements for the completion of the Advanced Course may be fulfilled during a second summer session, it being understood that

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the requirements for the completion of the Undergraduate Course have been previously fulfilled.

REQUIREMENTS FOR COMPLETION.—1. The satisfactory completion of an amount of work equal to at least twelve semester hours, in addition to the requirements prescribed for the Bachelor's degree and for the Undergraduate Course For the Training of Teachers.

2. For those students making special preparation for high school teaching, the twelve semester hours shall be divided approximately as follows:

Academic subject or subjects..... 8 hours.
Education ..... 4 hours.

3. For those students making special preparation for the work of school superintendents and principals, the twelve semester hours shall be divided as follows:

Education ..... 8 hours.
Academic subject ..... 4 hours.

4. In connection with the requirements in Education noted under (2) and (3) the student must fulfill such special requirements regarding the observation of teaching, visitation of schools and practice teaching as may be indicated by the department of Education. Students desiring to fulfill these special requirements are first entitled to such privileges and opportunities as may be available within the University.

Special Certificate

Upon the fulfillment of the requirements indicated above, and upon the joint recommendation of "fitness" by the Department of Education and the other departments concerned, the student shall be recommended by the Chairman of the Committee to the President of the University, to receive *The Certificate in the Advanced Course for the Training of Teachers.*

PROFESSIONAL INSTRUCTION—DEPARTMENTAL TEACHERS' COURSES

As stated above, this Course rests upon the foundation of a sound general education obtained during the first three years of College work. Very naturally during these three years, the student will be directing his study along certain academic lines, until by the beginning of the senior year, his tastes and capacities will enable him to focus his attention more directly upon

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those subjects for which preparation to teach is contemplated. During the junior year, and in some instances earlier, opportunity will be found to elect certain of the required fundamental professional courses in Philosophy and Education.

The plan of the Course involves a considerable concentration of professional study with the commencement of the work of the Senior year. In addition to the courses in the department of Education, this professional training includes courses, within the selected academic departments, especially adapted to the professional needs of students preparing to teach. These *Departmental Teachers Courses* place their chief emphasis upon the scope and methods of presentation of the specific subject-matter normally included within the curriculum of the high school and are in charge of men especially fitted for the work. They are open only to those students who have previously completed a certain prescribed minimum of academic courses in the subject, usually students of senior or graduate standing. At least one of these courses must be taken by students preparing to teach. Credit for such courses is included in the maximum number of credits permitted for a major subject.

For the purpose of affording a practical concrete basis for the work of the several Departmental Teachers Courses, and of the courses in the department of Education, facilities are provided for the observation of teaching, and in some instances for practice teaching in elementary classes within the University.

The observation of teaching is carried on in the High and Elementary schools of Madison, under a special agreement with the Board of Education of the City. By this agreement, a number of teachers in the Madison public schools have been specially designated to cooperate with the University instructors in making the departmental teachers courses and the observational work of the fullest value to the students.

During the year 1907-08 the following teachers in the public schools of Madison have been in charge of classes open for observational study by students of the University.

HIGH SCHOOL.—Bole, S. J., Mathematics; Jenkins, Sara D., English and French; Kleinpell, Irma, German; Moseley, Anna B., Latin; Murphy, Julia, History; Surrey, F. M., Physics; Warning, Winnie C., Mathematics; White, M. J., History.

ELEMENTARY SCHOOLS.—GEORGE WASHINGTON SCHOOL:—Edgar, Mary L., *Principal*, Eighth Grade; Kavanagh, Cecilia O., Seventh

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Grade; Carter, Theda A., Sixth Grade; Oleson, Mary C., Fifth and Sixth Grades; Jones, Rennette, Fifth Grade; Smith, Matilda, Fourth Grade; Fischer, Anna, Third Grade; Nelson, Florence, Second Grade; Huber, Dora, First Grade; Pelunek, Viola, First and Second Grades.

LYMAN C. DRAPER SCHOOL:—Marvin, Adeline R., *Principal*, Eighth Grade; Riley, Martha K., Seventh Grade; Reichert, Lorena, Fifth Grade; Billington, Kate, Fourth Grade; Cornish, Adeline, Third Grade; Wiswall, Irma B., Second Grade; Dengler, Clara, First Grade.

WASHINGTON IRVING SCHOOL:—Parsons, Emily R., *Principal*, Fifth and Sixth Grades; Lessig, Lida E., Fourth Grade; Hoyer, Elnora, Third Grade; Steve, Fannie M., Second Grade; Sutherland, Adda I., First Grade.

GRADUATES OF NORMAL SCHOOLS

Graduates of the advanced course of the Normal Schools of the State, admitted to the University, may obtain the University Teachers Certificate, or the special certificate in the Advanced Course For the Training of Teachers by fulfilling the above mentioned requirements in their University course.

SPECIAL LECTURERS

In order that the Course for the Training of Teachers may be maintained and developed in close relation with the practical educational interests of the state, the University aims each year to enlist the cooperation of presidents and professors of the Normal Schools, superintendents, principals and other engaged in educational work as Special Lecturers.

DEPARTMENTS OF INSTRUCTION

Only such departments and courses of instruction are here indicated as are immediately related to the work mentioned within the Undergraduate Course For the Training of Teachers. The announcements of the several departments and Colleges of the University should be referred to for more extended and detailed information regarding the courses of instruction open to those students intending to teach. The Chairman of the Committee and the departments concerned should be consulted with

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reference to the fulfillment of the requirements for the Advanced Course for the Training of Teachers.

Philosophy

For detailed information concerning the courses offered in the department of Philosophy open for election by students preparing to teach, see Index under Philosophy.

The following course (Philosophy 1) is required of all students fulfilling the requirements of the Undergraduate Course For the Training of Teachers.

Philosophy 1. Psychology: Introductory Course. *First semester.* Professors JASTROW and SHARP, Assistant Professor BODE, and Mr. SUTHERLAND.

Section 1. *Tu., Th., at 9 and F., at an hour to be arranged.* Professor JASTROW and Mr. SUTHERLAND.

Section 2. *M., W., at 8, and F., at an hour to be arranged.* Professor SHARP and Assistant Professor BODE.

Education

For detailed information concerning the equipment, and the courses offered in the department of Education, see Index under Education.

The following courses are open for election by those students fulfilling the requirements in Education of The Undergraduate Course For the Training of Teachers. (See Index under University Teachers Certificate.)

Education 1a. History of Education. *First semester; M., W., F., at 9.* Professor ELLIOTT.

Education 1b. History of Education in the Nineteenth Century. *Second semester; M., W., F., at 9.* Professor ELLIOTT.

Education 4a. Administration and Supervision of Education. *First semester; Tu., Th., S., at 9.* Professor ELLIOTT.

Education 4b. Administration and Supervision of Education. *Second semester; Tu., Th., at 9.* Professor ELLIOTT.

Education 5. Comparative Educational Administration. *Second semester; S., 9 to 11.* Professor ELLIOTT.

Education 11a. Mental Development. *First semester; M., W., F., at 10.* Professor O'SHEA.

Education 11b. Mental Development. *Second semester; M., W., F., at 11.* Professor O'SHEA.

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Education 13a. Principles of Education. *First semester; M., W., F., at* 11. Professor O'SHEA.

Education 13b. Principles of Education. *Second semester; M., W., F., at* 10. Professor O'SHEA.

Education 15. Contemporary Educational Movements. *First semester; M., W., at* 12. Professor O'SHEA and Professor ELLIOTT.

Education 16. Educational Classics. *Second semester; Th., 4 to* 6. Professor O'SHEA.

Education 41. Educational Psychology. *First semester; and repeated in the second semester; Lectures and demonstrations, Tu., Th., at* 11. *One laboratory period of two hours a week at hours to be arranged.* Assistant Professor DEARBORN.

Courses 11a, 11b, 13a, 13b, and 4b are given with the cooperation of those teachers in the Elementary and High Schools in Madison in charge of classes open for observational study. (See paragraph above, Professional Instruction, etc.)

Students registering in the Advanced Course for the Training of Teachers will consult with the Department of Education concerning additional courses open to election by such students.

History

For a detailed description of the courses offered in the department of history, comprising the academic preparation of teachers, see Index under History.

Through elementary and advanced courses in ancient, medieval, modern, English, and American history, the history department offers a thorough academic preparation for the work of the high school. The elementary courses are designed to furnish a general survey of the subjects mentioned and to introduce the student to the special problems of history; the advanced courses provide the more intensive historical training required for efficiency in the instructional work of the high school. The department is clearly of the opinion that a student who has had elementary courses in two or three fields and several advanced courses will make a more successful teacher in all the fields embraced even in a four years' high school course in history than if he had had all the elementary courses and no advanced work. The ideal academic preparation would involve elementary and advanced courses in each field taught in the high school, but this will usually require more than four years.

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ACADEMIC REQUIREMENTS TO TEACH HISTORY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach history as a major subject are required to obtain a minimum credit of thirty unit-hours in History (including a bachelor thesis), of which at least fourteen must be in advanced courses and thesis. Any student meeting these requirements will be admitted to the Departmental Teachers Course.

ACADEMIC REQUIREMENTS TO TEACH HISTORY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with History as a minor subject, are required to obtain a minimum credit of sixteen unit hours in History, including at least four unit-hours in advanced courses. Such students will be admitted to the Departmental Teachers Course, provided their work has shown promise.

DEPARTMENTAL TEACHERS COURSE.—History 50. The Teaching of History. This course is designed to supplement the general professional study in the department of education with special professional training in the teaching of history. The course includes: (a) A consideration of the peculiar educational value of history, (b) A careful comparative study of the different methods at present employed in the high schools, their advantages and limitations. The object is to furnish the prospective teacher with a practical, rational method, with which to begin his teaching, (c) Observation of teaching. The class study of methods is made as concrete as possible by the observation of high school teaching, by demonstration of methods by the University and high school instructors connected with the course, and by practice work. *Second semester; M., W., at* 9. For 1907-08, Associate Professor SELLERY and Mr. CHASE, in cooperation with Mr. WHITE and Miss MURPHY of the history department of the Madison High School.

Greek

For a detailed description of the courses offered within the department of Greek, comprising the academic preparation of teachers, see Index under Greek.

ACADEMIC REQUIREMENTS TO TEACH GREEK AS A MAJOR OR MINOR SUBJECT.—UNDERGRADUATE COURSE.—Students preparing to teach Greek as a major subject are required to obtain a credit of eighteen unit-hours in courses 1a, 1b, 2a, 3, and either 5a and 5b or 6. In the case of exceptionally good students, the completion of courses 1a, 1b, 2a and 3 will be accepted as a minimum

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preparation to teach Greek as a minor subject. Course 3 (Greek Prose Composition) is required of all students preparing to teach Greek.

DEPARTMENTAL TEACHERS COURSE.—The department of Greek does not offer a regular Departmental Teachers Course. For those preparing to teach Greek, opportunity is provided to study the method and aims of the instruction through the University classes in Elementary Greek. For those students who have taken and completed the work in Elementary Greek, elsewhere, regular visitation of the classes in Elementary Greek is required as an essential element in the preparation to teach.

Latin

For a detailed description of the courses offered in the department of Latin, comprising the academic preparation of teachers, see Index under Latin.

ACADEMIC REQUIREMENTS TO TEACH LATIN AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Latin as a major subject are required to obtain a minimum credit of thirty unit-hours in Latin. This must include Latin 1, 2, 3 or 5, 4 or equivalents, and 16 (Departmental Teachers Course).

ACADEMIC REQUIREMENTS TO TEACH LATIN AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Latin as a minor subject are required to obtain a minimum credit of twenty unit-hours in Latin. This must include Latin 1, 2, 3 or 5, 4, and one advanced course.

DEPARTMENTAL TEACHERS COURSE.—Latin 16. The Teaching of Latin. This course consists of: (a) Lectures, discussions, and assigned readings in departmental and pedagogical journals on the problems and methods of teaching Latin in secondary schools; (b) the close study of one of the Latin authors read in the schools; particular attention was given during 1907-08 to the second book of Caesar's Commentaries. (c) Reports and discussions based upon the practice teaching and the observation of teaching. *First semester; M., W., F., at* 10. Professor SLAUGHTER and Mr. SHANNAHAN, in co-operation with Miss MOSELEY of the Latin department of the Madison High School.

Romance Languages

For a detailed description of the courses offered in the department of French, comprising the academic preparation to teach French, see Index under French.

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Students who wish to prepare for teaching in other Romance Languages, such as Spanish or Italian, should consult with the chairman of the Romance Languages department.

Students expecting to teach French are also advised to take part in the work of the French Club.

ACADEMIC REQUIREMENTS TO TEACH FRENCH AS A MAJOR SUBJECT.—UNDERGRADUATE COURSE.—Students preparing to teach French as a major are required to obtain a minimum credit of twenty unit-hours in advance of course 10. The following courses are required of such students: courses 35 or 36, or one hour of each; one two-hour composition or conversation course, or two one-hour courses of such work. At least one course dealing with an extended period of French literature, such as courses 31, 21, 22, or 23, should also be taken. For those who are able to take more than the minimum amount of work, courses 40 or 41 are recommended.

ACADEMIC REQUIREMENTS TO TEACH FRENCH AS A MINOR SUBJECT.—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with French as a minor subject, are required to obtain a minimum credit of eight unit-hours in advance of course 10. At least one course should be in conversation or composition, and one course in some extended period of French literature, such as courses 31, 21, 22, or 23 should be taken. The requirements for preparation to teach French as a minor will vary greatly, depending upon the acquirements of the student in first and second year work. All such students are strongly advised to consult with the chairman of the French department during their second year's work in French.

DEPARTMENTAL TEACHERS COURSE.—French 35. The Teaching of French. A study of the aims and methods in teaching French. Lectures and reports (one hour). A review of the essentials of grammar taught in first year French (one hour). *First semester; one or two unit-hours credit.* Professor SMITH and Assistant Professor GAY.

French 36. The Teaching of French. A review of the work in second year teaching, dealing particularly with the following points: Pronunciation, reading, and composition (one hour). Practice teaching, and visiting classes, assigned work and reports (one hour). *Second semester; one or two unit-hours credit.* Professor SMITH and Assistant Professor GAY.

In course 35 there is a certain amount of class visiting in

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addition to the work indicated, and this is made the subject of reports and discussions in the course. In course 36 some class visiting is required of all, and those who wish, and for whom it is thought desirable, are given opportunity to do some practice teaching in French classes under the supervision of a competent instructor. Some of the class visiting is done in the Madison High School and the rest in the elementary classes at the University. The practice teaching is at the present time in the university classes.

German

For a detailed description of the courses offered in the department of German, comprising the academic preparation of teachers, see Index under German.

ACADEMIC REQUIREMENTS TO TEACH GERMAN AS A MAJOR SUBJECT.—UNDERGRADUATE COURSE.—Students beginning the study of German in the University with course 1 will generally not be able to prepare to teach German as their major subject to good advantage. Students taking course 2 in their Freshman year should, as a minimum, devote to German eight semester hours a year for the remaining three years, taking thus, including the thesis, a total of twenty-four semester hours in advance of course 2. At least eight of these hours should represent class work in advance of course 27. This amount represents a minimum for those preparing to teach German as the principal subject. The following courses are required: Courses 10 or 12, 14, 30 or 33, 50 and 51.

ACADEMIC REQUIREMENTS TO TEACH GERMAN AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with German as a minor subject will be required to complete course 10 or 12 and at least one course in German literature selected from courses 21 to 27 inclusive.

DEPARTMENTAL TEACHERS COURSE.—German 14. The Teaching of German. The course includes, (a) A critical study of the methods of teaching modern foreign languages; lectures, reports, discussions. (b) The visiting of at least twelve classes in the Madison High School, upon which written reports are required. The visiting of at least four university classes in elementary German, upon which written reports are required. (c) Practice teaching. A certain amount of practice teaching is included in

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the teachers' course. In addition to this, opportunity is offered a limited number of students in the second semester to teach for a week each a section of beginners' German under special supervision. *Two hours a week for one semester; M., W., at* 3. (Given in 1907-08 by Assistant Professor EVANS with the co-operation of Miss KLEINPELL of the German department of the Madison High School.) Professor HOHLFELD and Professor VOSS.

English

For a detailed description of the courses offered in the department of English, comprising the academic requirements for teaching, see Index under English.

ACADEMIC REQUIREMENTS TO TEACH ENGLISH AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach English as a major subject are required to take forty semester hours of work, and are permitted to take forty-six semester hours, including the credit for the bachelor's thesis and courses 1, 20, 30, 36 (or 36a) 40 and 50.

ACADEMIC REQUIREMENTS TO TEACH ENGLISH AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with English as a minor subject, are required to take courses 1, 30, 40 and 50.

DEPARTMENTAL TEACHERS COURSE.—English 50. The Teaching of English. The course includes the presentation of aims, methods and organization of high school work in English; a consideration of the principles of composition and of the forms of discourse, with special reference to teaching composition in secondary schools; the discussion of practical means of solving the problems of teaching English under present conditions in both large and small high schools; practice work in the correction of themes; a study of the classics used in high school reading; with opportunity for observation of teaching in high school. Required of all students who are preparing to teach English. *Throughout the year; Tu., Th., at* 12. Mr. BASSETT and Assistant Professor BLEYER in co-operation with Mrs. JENKINS of the English department of the Madison High School.

Before entering the Departmental Teachers Course, students should review English grammar and the principles of rhetoric, and make themselves familiar with the following selections:

Arnold's *Sohrab and Rustum;* Bunyan's *Pilgrim's Progress,* Part I; Burrough's *Birds and Bees, Sharp Eyes, A Bunch of*

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Herbs, etc.; Burke's *Conciliation with America;* Carlyle's *Essay on Burns;* Coleridge's *Ancient Mariner;* Cooper's *Last of the Mohicans;* Dickens' *Christmas Carol;* Franklin's *Autobiography;* Mrs. Gaskell's *Cranford;* George Eliot's *Silas Marner;* Goldsmith's *Vicar of Wakefield;* Hawthorne's *House of the Seven Gables;* Hawthorne's *Twice Told Tales;* Irving's *Alhambra;* Irving's *Sketch Book;* Lowell's *Vision of Sir Launfal;* Macaulay's *Life of Johnson;* Macaulay's *Lord Clive;* Poe's *Gold Bug and Other Stories;* Scott's *Ivanhoe;* Shakspere's *Julius Caesar, Macbeth, The Merchant of Venice;* Thoreau's *Succession of Forest Trees;* Tennyson's *Gareth and Lynette, Lancelot and Elaine, The Passing of Arthur;* Stevenson's *Treasure Island;* Warner's *A-Hunting of the Deer;* Webster's *First Bunker Hill Oration;* Washington's *Farewell Address.*

Mathematics

For a detailed description of the courses offered in the department of Mathematics comprising the academic preparation for teaching, see Index under Mathematics.

ACADEMIC REQUIREMENTS TO TEACH MATHEMATICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Mathematics as a major subject are required to obtain, in addition to the thesis, 26 unit-hours of credit, exclusive of courses 1 to 4 and 7, and including courses 5, 6, and 12, at least courses 5 and 6, together with the courses that necessarily precede them.

ACADEMIC REQUIREMENTS TO TEACH MATHEMATICS AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with mathematics as a minor subject, are required to obtain credit for 15 unit-hours in courses 1 to 5 inclusive, or their equivalent.

DEPARTMENTAL TEACHERS COURSE.—Mathematics 22. The Teaching of Mathematics. A course treating of the content of Elementary Mathematics and of the problems of the teaching of Mathematics in the secondary school. Open to seniors who have completed course 5 or its equivalent and, by special permission, to juniors possessing the requisite preparation. *Second semester; Tu., Th., at* 12. Assistant Professor SKINNER.

Chemistry

For a detailed description of the courses offered in the depart-

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ment of Chemistry, comprising the academic preparation for teaching, see Index under Chemistry.

ACADEMIC REQUIREMENTS TO TEACH CHEMISTRY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Chemistry as a major subject are required to obtain a minimum credit of twenty unit-hours in Chemistry, including courses 1, 20 (first semester) and 11 (at least five hours work).

ACADEMIC REQUIREMENTS TO TEACH CHEMISTRY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Chemistry as a minor subject are required to obtain a minimum credit of ten unit-hours in Chemistry.

DEPARTMENTAL TEACHERS COURSE.—Chemistry 5. The Teaching of Chemistry. This course considers both the matter to be presented and methods of teaching to be adopted in a high school course in Chemistry. The prerequisites for the course are the major requirements above indicated. Course 11 may be taken simultaneously with this course. *Second semester. Two lectures or recitations per week.* Assistant Professor WALTON.

Physics

For a detailed description of the courses offered in the department of Physics, comprising the academic requirements for teaching, see Index under Physics.

ACADEMIC REQUIREMENTS TO TEACH PHYSICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Physics as a major subject are required to have a minimum credit of twenty unit-hours in Physics.

ACADEMIC REQUIREMENTS TO TEACH PHYSICS AS A MINOR SUBJECT—UNDERGRADUATE COURSE. Students preparing to teach some other subject as a major subject, with Physics as a minor subject, are required to have a minimum credit of ten unit-hours in Physics.

DEPARTMENTAL TEACHERS COURSE.—Physics 4. The Teaching of Physics. This course will consist largely of lecture demonstrations conducted by the students before the class, under the guidance of the instructor; the demonstrations being such as are suitable for use in High School Courses. The primary object will be to give the student practice in handling simple lecture apparatus and in the presentation of elementary subjects to pupils. To be taken either with or following courses 2 and 3.

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Second semester; two hours a week, to be arranged. Professor SNOW.

Physiography and Geography

For a detailed description of the courses offered in the department of Geology, comprising the academic preparation for teaching Physiography and Geography, see Index under Geology.

ACADEMIC REQUIREMENTS TO TEACH PHYSIOGRAPHY AND GEOGRAPHY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Physiography and Geography as a major subject are required to obtain a minimum credit of twenty unit-hours in approved courses in the department of Geology.

ACADEMIC REQUIREMENTS TO TEACH PHYSIOGRAPHY AND GEOGRAPHY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Physiography and Geography as a minor subject are required to obtain a minimum credit of ten unit-hours in approved courses in the Department of Geology.

DEPARTMENTAL TEACHERS COURSE.—The department of Geology does not at the present time offer a departmental teachers course during the regular University session. Students desiring a special training in the methods and scope of the teaching of Physiography and Geography are referred to Course 1 (The Teaching of Physical Geography) given during the summer session.

Zoology

For a detailed description of the courses offered in the department of Zoology, comprising the academic requirements for teaching, see Index under Zoology.

ACADEMIC REQUIREMENTS TO TEACH ZOOLOGY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Zoology as a major subject are required to obtain a minimum credit of twenty unit-hours from the following courses: Biology 1; Zoology 2a, 2b, 4, 9, and 20.

ACADEMIC REQUIREMENTS TO TEACH ZOOLOGY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject, with Zoology as a minor subject, are required to obtain a minimum credit of ten unit-hours from approved courses in the list above indicated.

DEPARTMENTAL TEACHERS COURSE.—Zoology 20. The Teaching of Zoology. A consideration of the aims, methods, and subject matter of zoological instruction in the school. This course

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should be taken by all students preparing to teach Zoology either as a major or minor subject. *One lecture or conference per week during the first semester.* Assistant Professor HOLMES.

Botany

For a detailed description of the courses offered in the department of Botany, comprising the academic requirements for teaching, see Index under Botany.

Students preparing to teach Botany either as a major or minor subject are advised to elect courses in both structural and physiological Botany, and also those that involve field work.

ACADEMIC REQUIREMENTS TO TEACH BOTANY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Botany as a major subject are required to obtain a minimum credit of twenty unit-hours from the following courses: Biology 1; Botany 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 14, 17, 19, 20, 30, and 31.

ACADEMIC REQUIREMENTS TO TEACH BOTANY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject with Botany as a minor subject, are required to obtain a minimum credit of ten unit-hours from the following courses: Biology 1, Botany 2, 3, 4, 5, 6, 12, 13, 20 and 30.

DEPARTMENTAL TEACHERS COURSE.—Botany 13. Botanical Methods. Practice will be given in methods of preparing plant material and of growing various algae and fungi for use in the class room. Opportunity will also be given for collecting and preserving material for high school laboratory courses. Open to students who have had courses 1 to 4. *Two unit-hours; second semester.* Professor HARPER and Dr. MARQUETTE.

Physiology

For a detailed description of the courses offered in the departments of Anatomy, Physiology, and Bacteriology and Hygiene, comprising the academic preparation for teaching Physiology, see Index under Anatomy, Physiology, Bacteriology, Hygiene.

The departments of Anatomy, Physiology, and Bacteriology and Hygiene, acting conjointly, have outlined the following courses preparatory for teaching human physiology.

ACADEMIC REQUIREMENTS FOR TEACHING PHYSIOLOGY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach

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Physiology as a major subject are required to obtain a credit of twenty-three unit-hours in the following courses: Physiological Chemistry 4 (Prerequisite, organic chemistry) four unit-hours; Anatomy 5 (Prerequisite Biology 1) three unit-hours; Anatomy 15, three unit-hours; Physiology 5, nine unit-hours; Bacteriology 1, three unit-hours; General Hygiene 7, one unit-hour.

In order to fulfill these requirements such students must complete Physics 1, Chemistry 1, and Biology 1, before the beginning of the junior year.

ACADEMIC REQUIREMENTS TO TEACH PHYSIOLOGY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Physiology as a minor subject are required to obtain a credit of seven unit-hours in the following courses: Physiology 1 (three unit-hours); Bacteriology 1 (three unit-hours); General Hygiene 7, one unit-hour; Physics 1, Chemistry 1, and Biology 1 must also be completed.

Home Economics

For a detailed description of the courses offered in the department of Home Economics, comprising the academic preparation for teaching, see Index under Home Economics.

ACADEMIC REQUIREMENTS TO TEACH HOME ECONOMICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach Home Economics as a major subject are required to obtain credit in courses 1 (or 6) 2, 3, 4, 5, 9, and 10; and in addition, to the bachelors thesis.

ACADEMIC REQUIREMENTS TO TEACH HOME ECONOMICS AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Students preparing to teach some other subject as a major subject with Home Economics as a minor subject, are required to obtain credit for Courses 3 and 4.

DEPARTMENTAL TEACHERS COURSE.—Home Economics 10. The Teaching of Home Economics. This course includes: (a) History of Home Economics Movement and a study of the character of the courses in Home Economics and Domestic Science at present being given in representative schools of different grades, (b) Methods of presenting the work in schools of different grades, (c) Cost of equipment, (d) Bibliographical work given with a view to familiarizing students with the literature helpful in teaching the various subjects commonly included under the head "Domestic Science," (e) Observational work in the schools

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of Madison. This at present includes only a few visits each year, (f) Practice teaching in the non-credit courses of the department, those given in the Housekeepers' Conference and to the nurses, for example. *Throughout the year, Tu., at* 12. Professor HUNT and Miss HUNTINGTON.

Music

For detailed information concerning the courses in the department of Music, comprising the preparation of teachers of public school music, see Index under Music.

The department of Music has adequate facilities for the training of teachers of public school music. This training includes courses both for those who expect to combine the teaching of other branches with the subject of music in the grades or the high school; and for those who desire to fit themselves for the special work of supervision of music in the public schools. Opportunity is also offered for cultural studies in appreciation of music, history of music, etc.

Attention is called to the special advantages offered in the School of Music for the private study of piano, voice, organ and violin for moderate tuition; also for choral practice in the large Choral Union which rehearses weekly throughout the academic year.

Agriculture

Beginning with the academic year 1908-09, the College of Agriculture proposes to establish, with the cooperation of the severally allied departments of the University, courses appropriate for preparation for the teaching of Agriculture. The attention of students is directed to the Elementary Course in Agriculture now offered in the department of Agriculture by Professor Henry which may be elected to fulfill the requirements for the preparation to teach Agriculture as a minor subject.

Commerce

The Course in Commerce affords adequate facilities for those students who wish to prepare themselves to teach Commercial subjects in secondary schools. Such students are advised to consult with the director of the Course in Commerce in the arrangement of elective work. Special facilities for pedagogical practice will be given such students in connection with the Courses in

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Business Administration, and work in addition to that prescribed may be arranged in subjects of especial importance to teachers.

Physical Training

A course in Physical Training will be offered to those persons who desire to fit themselves as teachers. The course will consist of (a) practical and (b) theoretical work.

Under (a) will be given instruction in drills with dumb-bells, wands, clubs, and free hand movements, and methods of arranging and conducting gymnastic classes. Practical work will be offered on the various pieces of gymnastic apparatus, such as the long and side horse, parallel bars, horizontal bars, rings, tumbling, etc. Attention will be given to the grading of exercises on these pieces of apparatus.

Under (b) will be given lectures on the following subjects: the physiology of exercise; personal hygiene; first aid to the injured; the various systems of physical training; the development and growth of the physical training movement in educational institutions; the prescription of exercise; the method and object of physical examinations, etc.

Members of the classes will be given opportunity to get practical experience in teaching, and leading of gymnasium squads. In addition, courses may be taken in the departments of Physiology, Hygiene, Anatomy, etc., which have a direct bearing on the subject of physical training. The courses are open to both men and women.

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DEGREES

CONFERRED ON COMMENCEMENT DAY, 1907

COLLEGE OF LETTERS AND SCIENCE

Bachelor of Arts

Elsie Louise Adams.
Loyal Blaine Aldrich.
Marion Bradburn Allen.
Alexander Gustav Althoff.
Esther Anderson.
Selina Elizabeth Anderson.
Nellie Nadine Angell.
Zillah Julia Bagley.
*Lilian Banting.
Sara Curen Barber.
Blanch Jessie Barker.
Mildred Lucile Barlow.
*George Bartelt.
Joseph Leon Bednarek.
Nora Belle Binnie.
Carolyn Etta Blackburn.
Matilda Elizabeth Blied.
Rose Andrews Bowen.
Otto Henry Breidenbach.
Robert Kemp Brewer.
Harriet Jane Webster.
William Arthur Brindley.
Lulu Belle Brockway.
Ray Broughton.
Iva Luella Buchanan.
Ida Martha Burgess.
*Alfred Hanson Bushnell.
Mary Francis Byrne.
Alice Matilda Carey.
Loretto Helen Carey.
Florence Dombey Case.
Georgie Elizabeth Chave.
Tilden Ballard Clark.
Ethel Pearl Clough.
Jerome Henry Coe.
Verna Victorine Comstock.
Alva Henry Cook.
Anna Alice Corstvet.
*Mildred Harriet Curtis.
Elnora Ingeborg Dahl.
Mabel Elsie Davidson.
Benjamin Franklin Davis.
Grace Wilhelmina Davison.
Margaret Monica Donovan.
Anna Douglas.
*Ruth Douglass.
*Della Gay Drips.
May Vanancia Dunn.
*Florence Corlett Earl.
Joseph Eder.
Alma Mayo Edwards.
Ruth Nathalia Ekern.
Clarence Ferdinand Ellefson.
Elmer Winter Ellefson.
Laura Belle Elliott.
Edith Josephine Erwin.
Fred Henry Esch.
Elmer Vail Eyman.
John Farris.
Helen Armine Fay.

*Degree conferred since Commencement, 1907.

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Martha Luella Ferguson.
Albion Garfield Findlay.
Elizabeth Townsend Flett.
Geraldine Hyland Foley.
Bessie Gordon Fox.
Margaret Frankenburger.
Elizabeth Webb Gaynor.
John Theodore Geissendoerfer.
Ella Barbara Gilfillan.
Charles Mason Gillett.
Helen Leonard Gilman.
Grace Allen Gilmore.
Ruth Goe.
Harry Leon Gray.
Margaret Greene.
Ernest George Grey.
*Helen Theo. Grove.
*Grace Lillian Grow.
Ralph George Gugler.
Emil Frederick Hacker.
Charles Norton Hall.
*Frederick Alexander Hanson.
*John Henry Hanten.
Elva Harker.
Helen Louise Harris.
Elizabeth Edna Hastings.
Catherine Pearl Hayden.
Frank Todd H'Doubler.
Pearle Madeliene H'Doubler.
Helen Louise Head.
Cora Case Hinkley.
*Raymond Royce Hitchcock.
Grace Hobbins.
Edna Louise Holderness.
May Luella Holmes.
Ruth Caroline Holum.
William Frederick Hood, Jr.
Mabel Ruth Hopkins.
Helen May Howe.
Helen Margaret Hurd.
Charles Edwards Inbusch.
George Ives.
Alodph Rudolph Janecky.
Eli Severn Jedney.
Isabel Reid Johnson.
Joseph Frank Kadonsky.
†Chase William Kelley.
Mollie Smeallie Kelly.
Edith Irene Keachum.
Norman Captive Kimball.
William Charles Knoelk.
Agnes Caroline Knudson.
Robert Franklin Koenig.
John Kostalek.
August Charles Krey.
William Henry Kuntz.
Arthur Hugo Lambeck.
Eva Marie La Reau.
Alfred Larson.
*Clarence Charles Le Febvre.
Genivera Edmunds Loft.
Emma Octavia Lundberg.
Helen Bertha Maas.
Florence Isabel Mace.
Charles Andrew Madson.
Erna Edna Maurer.
*Heinrich Herman Maurer.
Thomas Joseph McClernan.
*Edith Trafton McCormick.
Elisabeth Bowman McGregor.
Frances Mary MacIntosh.
Elisabeth Douglas McKey.
Marguerite Louise McLean.
Merne Theile McNutt.
Arlisle Maria Mead.
Isabella McGregor Mezies.
Florence Mosher Miller.
Elsie Marcellite Minn.

*Degree conferred since Commencement, 1907.
†Degree conferred as of the class of 1905.

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Dorathea Alvyna Moll.
Byrrd Pearl Morse.
Erma Voshardt Mueller.
Max John Mulcahy.
Maude Maxwell Munroe.
Matthias Munson.
Oliver Otto Nelson.
Celia Elizabeth Newman.
Miriam Noyes.
Roy Enoch Noyes.
Mary Calista O'Keefe.
Owen Cargill Orr.
Mary Burchard Orvis.
Mary Elizabeth Hodges Owen.
Marie Parker.
Harry Fletcher Parker.
Caryl Parsons.
Edith Lavinia Pelton.
Stella May Pengra.
Rollie Al Petrie.
Frieda Louise Pfaffiin.
Kenneth Louis Moffatt Pray.
Mary Hannah Proud.
Leslie Fargher Purdy.
Charles Maltador Purin.
Charles Bullen Quarles.
Mildred Rose Rankin.
Lela Maude Raymond.
James Burton Read.
Minnie Elmida Rehfeld.
Jesse Laurence Richards.
Margery Roberts.
Alexander Benjamin Rosenheimer
Emma Josephine Rosholt.
Mae Rowe.
Florence Anne Rudolph.
Katherine Moore Sanderson.
Irving Peter Schaus.
Francis Lee Schneider.
Hugo Walter Schnetzky.
John Albert Schnorenberg.
Valentine Edward Schranck.
Arthur Joseph Schroeder.
Selma Langenhan Schubring.
Genevieve Allen Scott.
Horace Secrist.
Paul August Seeger.
Alexander Walter Seiler.
Edna Theodora Seilstad.
Harry Charles Max Severin.
Emma Hart Shaw.
*Glen Alfred Shook.
Diana Jean Smith.
Eleanor Clemons Smith.
William Harvey Sprague.
Milton Ritchie Stanley.
Paul Edmund Stark.
Josie Steig.
Olaf Ulring Stromme.
Henry Edward Swensen.
Katherine Marie Swint.
Halvor Orlando Teisberg.
Grace Thompson.
Tilde Thomina Thompson.
*Clara Christine Tragsdorf.
Walter Scott Underwood.
Florence Lou Usher.
Robert James Usher.
Ethel Buell Virtue.
Frank Laird Waller.
Alice Mary Walker.
Francis Elvira Wallis.
Martha Lucile Washburn.
Frieda Gertrude Wehmhoff.
Letta Helen Whelan.
Charlotte Eleanor White.
Della Maude White.
Dorothy Elaine White.
John Frederick Whitford.
Effie Margaret Whyte.

*Degree conferred since Commencement, 1907.

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Ralph Guido Wiggenhorn.
Frankwood Earl Williams.
May Henrietta Willis.
Hubert Otto Wolfe.
Colin Wilson Wright, Jr.
Ethel Wright.
Marion Elizabeth Wright.
Lilley Mae Young.
Leonard Bloomfield Zeisler.

COURSE IN COMMERCE

Seth Burton Atwood.
Tracy Lloyd Burke.
Joseph Henry Curtin.
Frank Conn Jones.
Robert Wentworth Lea.
John Woodworth Leslie.
Arthur William Logan.
*Harry Gage Montgomery.
Paul G. Mueller.
John Frederick Nadler.
Charles Lawrence Nelson, Jr.
Robert Marcus Niven.
Henry Thomas Nolan.
Orvis Allen Postlewait.
Paul Nangle Reynolds.
Edmund Burke Riley.
Alfred Louis Sommers.
Herbert Carl Stark.
James Riley Stone.
Alexander Theodore Uehling.
William Arnold Volkmann.
John Solon Walbridge, Jr.
DeLancey Starkweather Webb.
Milton Lysander Woodward.

Bachelor of Philosophy

Beverly Fletcher Adams.
*Jesse Hazen Ames.
Elsie Adelaide Bell.
Lillian Louise Bettinger.
Nellie Brennan.
Roxana Cordia Brown.
Ethel Suzanne Carter.
Anna Estelle Christman.
Ethel Margaret Christoffers.
Edward Patrick Crain.
Helen Elizabeth Cronin.
May Lillian Crosby.
Susie Isabelle Desmond.
*Grace Alma Dinsdale.
*Edward Martinius Gilbert.
Abbie Anna Green.
Frank Oscar Holt.
Charles Anton Jahr.
Myron Eliot Keats.
William Bismarck Kempthorne.
Anita Kathrine Koenen.
Francis Ralph Nash.
Mary Louise Schuler.
Lucia Claire Spooner.
William Frederick Steve.
Leonard Ulysses Towle.
*James Patrick Vaughan.
*Anna Margaret Williams.

Bachelor of Science

Gerhard Carl Brennecke.

Bachelor of Science, Pharmacy Course

Andrew Grover Du Mez.
Arthur Frederick Sievers.

Graduate in Pharmacy

Leslie Bertrand Dustin.
Raymond Louis Schulz.

*Degree conferred since Commencement, 1907.

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James William Fluck.
*Edward Charles Glennon.
Valerio Cala Jaehrling.
Joseph Keho.
Clarence McDaniel.
Stanley Manleus Sorley.
John Swenholt.
Martin Edwin Titus.
Alvin Henry Ward.

Master of Pharmacy

Naojiro Inouye.

COLLEGE OF ENGINEERING

Bachelor of Science

GENERAL ENGINEERING COURSE

Charles Pease Barker.
John Owen Bryant.
Joseph Edward Dean.
Arthur Earl Grunert.
Ernest Samuel Hirschberg.
Harry Jacob Kruse.
John Alexander McCulloch.
Frank William Manegold.
Owen William Middleton.
William Boyd Miller.
Orwin K. Peck.
Edward Rand Richter.
Wilfred Lincoln Rowe.
Lewis Sherman, Jr.
Oscar Louis Uihlein.
Thomas Earl Van Meter.
*Gana Gustavus Ryder.
Frederick Charles Ernest Wessel.
Carl Zapffe.

CIVIL ENGINEERING COURSE

Harold Jean Barker.
John George Bock.
Alfred Blake Carey.
Stewart Lambert Clark.
James Hugh Curtin.
Alfred Samuel Diehl.
Jerry Donohue, Jr.
Fred Charles Ebert.
Arthur Augustus Fisher.
Warren Allen Gelbach.
Samuel Reuben Hatch.
Paul Browning Johnson.
Walter Scott Lacher.
Miner T. Meadowcroft.
Eustace Edwin Parker.
Bernard Snell Pease.
William Clay Penn.
Frank Charles Schroeder.
Jack Morgan Smith.
Orrin Cheney Smith.
Edward Wording Stearns.
Benjamin Single Thayer.

MECHANICAL ENGINEERING COURSE

Reuben Field Arndt.
Robert William Baily.
Charles Faben Bleyer.
Edward Wesley Burgess.
Charles Edward Edmund.
Bruno Victor Edward Nordberg.
Charles Osgood.
Bruno Rahn.
Julien Downing Sargent.
David Rockwell Sperry.

*Degree conferred since Commencement, 1907.

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Robert Fred Egelhoff.
William James Freeman.
William Nicholas Glab.
Elijah Charles Greisen.
William Sylvester Harley.
Charles Roy Higson.
Arthur Edward Keller.
William Henry Lieber.
Adolph James Luick.
John Mainland.
George Cheney Newton.
Walter Frohsinn Teschan.
Isaac Thorbus Thompson.
Stephen Charlemagne Wachenfeld
William John Wadsworth.
Frank Melville Warner.
Erwin Hudson Wetlaufer.
Joseph Bond Whitmore.
John Clifford Wied.
William Kneeland Winkler.
Joseph Zwolanek.

ELECTRICAL ENGINEERING COURSE

Rowland Barney Anthony.
Alfred William Bechlem.
Guy Albert Benedict.
Fred M. Blackburn.
Avery Reeves Colburn.
Ferdinand Julius Derge.
Celestine Clement Eagle, Jr.
Howard Claes Estberg.
Oscar H. Gaarden.
Willis Alfred Gattiker.
Edwin Herman Gielow.
Albert John Goedjen.
Charles William Green.
Benjamin Greenfield.
Charles William Hejda.
Dwight Firman Henderson.
Albert Herman Heyroth.
Allen Charles Hibbard.
Willard Foster Hine.
Marvin Washington Holben.
Thomas Holt.
Edwin Palmer Hubbard.
Thomas Francis Kelly.
John Frederick Klug.
Lawrence Moses Libby.
Richards Llewellyn Loesch.
Thomas Joseph Lucas.
Engwall Olson.
Guy H. Palmer.
David Alva Powell.
Louis Ferdinand Reinhard.
*Roy Asa Sanborn.
Herbert Brooks Sanford.
Stephen Benjamin Severson.
Edmond Montefiore Simon.
Charles Alexander Smeaton.
Edward Anderson Thomas.
Louis Mark Thompson.
George Ernst Wagner.
Thomas C. Whelan.

CHEMICAL ENGINEERING COURSE

John Edward Cleary.
Emil Leo Leasman.
John Cecil Tarr.
Louis Edward Ward.

COLLEGE OF AGRICULTURE

Bachelor of Science in Agriculture

William Medhurst Bewick.
Clayton Ross Murdock.

*Degree conferred as of the class of 1901.

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*Walter Henry Cooper.
Lloyd Omer De Haven.
Henry Lewis Germann.
Leon Osee Griffith.
George Sherwood Hine.
Albert Aaron Johnson.
Charles Knight.
James Garfield Milward.
Arthur John Norris.
Guy Fred Page.
Augustus James Rogers, Jr.
Ernst Rosenthal.
John Lawless Tormey.
William Bohler Walker.
Austin Walline.

COLLEGE OF LAW

Bachelor of Laws

Harry Garfield Bell.
David Bogue.
Lee Boland.
John Bernard Clark.
Stanley Gray Dunwiddie.
*Newton William Evans.
Louis John Fellenz.
†Harold Llewellyn Geisse.
Harry Glicksman.
Francis Wilbrod Grogan.
Frank Harold Hanson.
Henry Adler Hirshberg.
August Kading.
Robert Edward Kennedy.
Ira Sherburn Lorenz.
Arthur William Lueck.
Thomas Joseph Mahon.
George Edwin Maine.
*William Don McGraw.
Edward William Miller.
Lawrence John Mistele.
Oscar O. Natwick.
Paul Revere Newcomb.
Carl Frederick Pfund.
Elam Jewett Raymond, Jr.
Clarence Lemuel Richardson.
Thomas Alexander Sanderson.
Jocob Harry Sapiro.
Ernest Seelman.
Lynn Henry Smith.
*John Ray Snider.
William Henry Timlin, Jr.
*Albert Theodore Twesme.
Edward Dorsey Wallace.
Chauncey Rex Welton.
Alexander Wiley, Jr.

SCHOOL OF MUSIC

Graduate in Music

Loyal Blaine Aldrich.
Vinnie Bertine Anderson.
Katherine Marie Ballard.
Mabel Rose Breitenbach.
Iva Luella Buchanan.
Walter Warren Ehlman.
Flora Moseley Gilman.
Grace Lilian Grow.
Erna Edna Maurer.
Cora Miriam Norsman.
Sara Evelyn Norton.
Florence Edna Perkins.
Otilda Helen Sanders.
Julia Teisberg.
Almina Mae Theobald.
Frank Laird Waller.

*Graduated Feb. 18, 1908.
†Degree conferred since Commencement, 1907.

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Margaret Isabel Johnson.
Bertha Alice Lang.
Justine Waterman.
Jessie Myrtle Webber.

HIGHER DEGREES

Master of Arts

Ruth Florence Allen, B. A., (University of Wisconsin), in Botany.
THESIS: The development of antherozoids in ferns.

*Willis James Bell, B. A. (Iowa State Normal School), in Latin and German.
THESIS: The Querolus and its origin.

Marie Merriam Bradley, B. A. (University of Oregon), in History.
THESIS: Political beginnings in Oregon. The period of the provisional government, 1839-1849.

Thomas Woodside Bentley Crafer, B. A. (University of North Dakota), in Economics.
THESIS: The administration of public poor-relief in Wisconsin.

Paul Herman Decker, B. A., (Wartburg College), in German.
THESIS: Die beziehungen Herders zu England in seinen jugendschriften.

*Adolphine Bianca Ernst, B. L. (University of Wisconsin), in German.
(Without Thesis.)

*Arthur Dudley Samuel Gillett, B. L. (University of Wisconsin), in Political Economy.
(Without Thesis.)

Edmund Cecil Harder, B. A. (University of Wisconsin), in Geology.
THESIS: The iron ores of the iron ore springs district, Utah.

Charles Warren Hill, B. A. (University of Minnesota), in Chemistry.
THESIS: The action of sulphuryl and thionyl chlorides on tellurium and tellurium dioxide.

Kyugoro Ishizawa, LL. B. (Waseda University), in Economics.
THESIS: The war finances of Japan.

Lorian Pamelia Jefferson, B. L. (Lawrence University), in History.
THESIS: The Oregon question.

Edwin Alexander Jenner, B. S. (Simpson College), in Psychology.
THESIS: Some stroboscopic effects caused by progressive interruption of light.

*Degree conferred since Commencement, 1907.

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Francis Craig Krauskopf, B. A. (University of Indiana), in Chemistry.

THESIS: A new method for the separation of the lithium chloride from the chlorides of the other alkalis.

Benjamin Franklin Lutman, B. A. (University of Missouri), in Botany.

THESIS: Cytoplasmic and nuclear fusions in the promycelial cells of certain smuts.

Douglas Macduff, B. A. (University of Michigan), in Romance Languages.

THESIS: The Spanish epic.

Charles Richard Mann, B. A. (Lawrence University), in English

THESIS: The modern trend of literary criticism.

Masao Matsuoka, B. A. (Keiogijuku University), Political Science.

THESIS: Political parties in Japan.

Edward McMahon, Ph. B. (University of Washington), in American History.

THESIS: Stephen A. Douglas: a study of the attempt to settle the question of slavery in the territories by the application of popular sovereignty.

Evelyn Marie Niedecken, B. A. (Milwaukee Downer College), in Food Chemistry.

THESIS: The composition and adulteration of honey.

William Frederick Notz, M. A. (Northwestern University), in Hebrew.

THESIS: On the signification of the Ebed Yahweh in the so-called Ebed Yahweh songs of Isaiah.

Helen Alice Rosenstengel, B. A. (University of Wisconsin), in German.

(Thesis requirement absolved by bacclaureate thesis of 1906.)

Harry Union Russell, B. S. (New Hampshire State College), in History.

THESIS: The extension of the French influence over Indo-China.

Henry Herman Paul Severin, B. A. (University of Wisconsin), in Entomology.

THESIS: Anatomical and histological studies of the digestive canal of *Cimbex americana*.

William Henry Shephard, Ph. B., (University of Wisconsin), in History.

THESIS: The causes of the transfer of literary supremacy from New York to New England about 1830.

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Julia Forster Smith, B. A. (University of Wisconsin), in Latin.

THESIS: A comparison of certain phases of nature in Lucretius's De Rerum Natura and Vergil's Aeneid.

Edward Steidtmann, B. A. (University of Wisconsin), in Geology.

THESIS: A graphic comparison of the alteration of igneous rocks by weathering with their alteration by hot solution.

*George Ware Stephens, Ph. B. (Iowa Wesleyan University), in Political Economy.

THESIS: Interest rates on the New York Money market, 1861-1865.

Clement Le Verne Waldron, B. A. (University of Nebraska), in Economics.

THESIS: Anti-trust legislation in Iowa and Nebraska with an introductory chapter on the origin of the trust.

Carroll Harvey Wegemann, B. A. (University of Wisconsin), in Geology.

THESIS: Some notes on river development in the vicinity of Danville, Illinois.

*Albert D. Whealdon, B. A. (University of Wisconsin), in Chemistry.

THESIS: On the determination of the atomic weight of yttrium.

Melvin Johnson White, B. S. (New Hampshire College), in History.

THESIS: Internal improvements in New England from 1789 to 1830.

John Whyte, B. A. (University of Wisconsin), in German.

(Thesis requirement absolved by baccalaureate thesis of 1906.)

Hugo John Wichmann, B. A. (University of Wisconsin), in Chemistry.

THESIS: On the electrolysis of molten metallic chlorides.

Ethelwyn Wing, B. L. (University of Michigan), in History.

THESIS: St. Bernard's conception of the church.

Norma Curtis Wood, B. A. (University of Wisconsin), in German.

THESIS: Elements of realism in the prose writings of Theodor Storm.

Master of Philosophy

Margaret Sutherland, Ph. B. (University of Wisconsin), in English.

(Thesis requirement absolved by baccalaureate thesis of 1906.)

*Degree conferred since Commencement, 1907.

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Laura Ellen Verran, Ph. B., (University of Wisconsin), in English.

(Thesis requirement absolved by baccalaureate thesis of 1906.)

Master of Science

Herman Beckenstrater, B. S. (University of Wisconsin), in Agriculture.

(Thesis requirement absolved by baccalaureate thesis of 1904.)

Lewis Edgar Cline, B. S. (University of Missouri), in Bacteriology.

THESIS: The relation between the leucocyte and streptococcus content of cow's milk.

Civil Engineer

Earl Emmet Hunner, B. S. (University of Wisconsin).

THESIS: Engineering features of Mesaba Range mining.

George Robertson Keachie, B. S. (University of Wisconsin).

THESIS: The reclamation service at Garden City ,Kan.

Sherman Moore, B. S. (University of Wisconsin).

THESIS: Gas-pipe station and the twist of triangulation stations.

John Lyman Smith, B. S. (University of Wisconsin).

THESIS: Power development at Johnson Falls, Peshtigo, River, Wisconsin.

Jerome Goodspeed Van Zandt, B. S. (Purdue University).

THESIS: An economic study of tonnage rating for freight locomotives.

Chemical Engineer

Simon Gingrich Engle, B. A. (University of Indiana).

THESIS: The influence of inequalities of temperature upon corrosion of iron.

Mechanical Engineer

Ole Trooien, M. S. (South Dakota Agricultural College).

THESIS: The current practice in proportioning steam engine parts.

Electrical Engineer

John Nelson Cadby, B. S. (University of Wisconsin).

THESIS: The design, construction, operation, and test of a railway and lighting sub-station.

Lewis Fussell, M. S. (Swarthmore College).

THESIS: Induction motor diagrams.

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Doctor of Philosophy

Florence Eliza Allen, M. L. (University of Wisconsin), in Mathematics and Astronomy.

THESIS: On the determination of cyclic involutions of order three.

Carl Becker, B. A. (University of Wisconsin), in History and Economics.

THESIS: History of political parties in New York Province, 1760-1776.

John Leonard Conger, M. A. (University of Michigan), in History and Political Science.

THESIS: Nullification in South Carolina.

Lewis Fussell, M. S. (Swarthmore College), in Applied Electricity and Physics.

THESIS: Self-excited polyphase asynchronous generators.

David Russell Lee, M. A. (University of Indiana), in Latin and Greek.

THESIS: The parent-child relation in Plautus.

William George Marquette, B. S. (University of Wisconsin), in Botany, Chemistry and Philosophy.

THESIS: Concerning the organization of the spore-mother-cells of *Marsilia quadrifolia*.

Otto Patzer, M. L. (University of Wisconsin), in French.

THESIS: Eustache Deschamps as a commentator upon the events and conditions of his time.

George Matthew Reed, B. A. (Geneva College), in Botany, Zoology and Bacteriology.

THESIS: Infection experiments with *Erysiphe cichoracearum* D C.

*Arthur Romeyn Seymour, M. L. (University of Wisconsin), in Romance philology, Spanish, and Latin.

THESIS: The development of the Latin pluperfect indicative in Spanish.

*John Griffin Thompson, A. M. (University of Chicago), in Political Economy, History, and Political Science.

THESIS: The relation between railway construction and the development of the wheat industry of the northwest.

HONORARY DEGREE

Doctor of Laws

Liberty Hyde Bailey,
Director of the College of Agriculture of Cornell University.

*Degree conferred since Commencement, 1907.

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Master of Arts

Charles Rountree Evans,
Dean of the Law Department of Grant University.

HONORS IN SPECIAL STUDIES

Loyal Blaine Aldrich, in Physics.

THESIS: A study of the lead voltameter.

Robert Kemp Brewer, in Chemistry.

THESIS: Equilibrium in the system silver nitrate and pyridine.

Harry Glicksman, in Law.

THESIS: The case of Price vs. Neal.

Ruth Goe, in Latin.

THESIS: Lucretius's theory of knowledge.

Henry Adler Hirshberg, in Law.

THESIS: Powers of the state to regulate relations between races.

August Charles Krey, in Enropean History.

THESIS: John of Salisbury's knowledge of the classics.

Thomas Joseph McClernan, in Greek and Latin.

THESIS: The character of Tiberius: a comparison of the evidence furnished by Dio Cassius Tacitus, Suetonius, and Latin inscriptions.

Elizabeth Bowman McGregor, in Latin.

THESIS: The pictorial element in the Aeneid of Vergil.

James Garfield Milward, in Horticulture.

THESIS: The botanical and agricultural status of the eary blight fungus *Alternaria solani*.

Charles Maltador Purin, in German.

THESIS: Die sozialen anschauungen Heinrich von Kleists nach seinen dramen, ersaehlungcn und briefen dragestellt.

Grace Thompson, in English.

THESIS: The relation of the folk-tale and the ballad as shown by Grimm's Household Tales and Child's English and Scottish Popular Ballads.

Edward Dorsey Wallace, in Law.

THESIS: The specific enforcement of negative covenants in contracts for personal services.

Carl Zappfe, in Geology.

THESIS: The geology of the Cuyuna iron ore district of Minnesota.

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SUMMARY OF GRADUATES

		1907.
Number of first degrees granted, 1854-1907.....	6751	483
Present Courses:		
Courses leading to the Degree of Bachelor of Arts, including Course in Commerce, 22, 1907	844	252
Course for Normal School Graduates, 1898-1907	241	28
Civil Engineering Course, 1873-1907.....	286	22
Mechanical Engineering Course, 1876-1907....	237	31
Electrical Engineering Course, 1892-1907....	288	40
Applied Electrochemistry Course, 1903-1907..	16	4
General Engineering Course, 1901-1907.....	53	19
Law Course, 1869-1907.....	1726	36
Pharmacy Course, 1884-1907.....	273	14
Course in Agriculture, 1878-1907.....	69	17
School of Music, 1898-1907.....	87	20
Courses discontinued:		
Ancient Classical Course, 1854-1903.....	470	
Modern Classical Course, 1876-1903.....	548	
English Course, 1887-1903.....	458	
Civic Historical Course, 1893-1903.....	383	
General Science Course, 1886-1903.....	722	
School of Commerce (B.L., 8; B.S., 1, 1902-1903	9	
Normal Course, 1865-1868.....	25	
Metallurgical Engineering Course, 1876-1896..	16	
Higher Degrees on Examination, 1875-1907.....	523	58
Masters, 1879-1907.....	336	39
Engineers, 1875-1907	81	9
Doctors of Philosophy, 1892-1907.....	106	10

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STUDENTS

GRADUATES

FELLOWS AND SCHOLARS

Boyd, Clarence Eugene, *Spartanburg, S. C.*
A. M., University of Missouri, Fellow in Latin.

Breckenridge, James Miller, *Jamestown, Ont.*
B. A., Albion College, Scholar in Chemical Engineering.

Burdick, Lawrence Wylie, *Albion.*
M. A., University of Wisconsin, Fellow in Greek.

Cance, Alexander Edmond, *Shiocton.*
M. A., University of Wisconsin, Fellow in Political Economy.

Cox, Guy Henry, *Fort Dodge, Ia.*
B. S., Northwestern University, Fellow in Geology.

Crafer, Thomas Woodside Bentley, *Brooklyn, N. Y.*
M. A., University of Wisconsin, Fellow in Sociology.

Curtis, Roy Emerson, *Dow City, Ia.*
B. A., Nebraska Wesleyan University, Scholar in Political Science.

Decker, Paul Herman, *Madison.*
M. A., University of Wisconsin, Henry Gund Scholar in German.

Hacker, Emil Frederick, *Arcadia.*
B. A., University of Wisconsin, Scholar in Romance Languages.

Hancock, Glover Dunn, *Osciola.*
M. A., William Jewell College, Fellow in Political Economy.

H'Doubler, Francis Todd, *Madison.*
B. A., University of Wisconsin, Scholar in Mathematics.

Hirsch, Alcan, *Corpus Christi, Tex.*
B. A., University of Texas, Scholar in Applied Electrochemistry.

Hooton, Earnest Albert, *Waupun.*
B. A., Lawrence University, Lawrence University Graduate Scholar.

Hornbeck, Stanley Kuhl, *Denver, Colo.*
B. A., Oxford University, Fellow in Political Science.

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Klein, David, *Chicago, Ill.*
M. A., University of Illinois, Fellow in Chemistry.
Knowlton, Philip Arnold, *Madison.*
B. A., University of Wisconsin, Scholar in Philosophy.
Kostalek, John, *Milwaukee.*
B. A., University of Wisconsin, Scholar in Chemistry.
Krey, August Charles, *Milwaukee.*
B. A., University of Wisconsin, Scholar in European History.
Lutman, Benjamin Franklin, *Joplin, Mo.*
B. A., University of Missouri, Fellow in Botany.
Maurer, Heinrich Hermann, *Willsbach, Germany.*
B. A., University of Wisconsin, Fellow in European History.
McClernan, Thomas Joseph, *Madison.*
B. A., University of Wisconsin, Scholar in Latin.
McKitrick, Reuben, *Alva, Okla.*
B. A., University of Oklahoma, Scholar in Political Economy.
McMahon, Edward, *Seattle, Wash.*
M. A., University of Wisconsin, Fellow in American History.
McMahon, Theresa Schmid, *Seattle, Wash.*
M. A., University of Washington, Fellow in Sociology.
*Mott, William Roy, *Decorah, Ia.*
B. S., University of Wisconsin, Scholar in Applied Electro-Chemistry.
Newport, Clara Price, *Swarthmore, Pa.*
B. A., Swarthmore College, Fellow in German.
Norwood, John Nelson, *Alfred, N. Y.*
Ph. B., Alfred University, Scholar in American History.
Otto, Maxwell Charles, *Wheeling, W. Va.*
B. A., University of Wisconsin, Fellow in Philosophy.
Simmons, Emma Gertrude, *Berryville, Ark.*
B. A., University of Missouri, Fellow in Romance Languages.
Stickney, Malcolm Enos, *Granville, O.*
M. A., Harvard University, Honorary Fellow in Botany.
Taylor, Archibald Wellington, *Spokane, Wash.*
B. A., Doane College, Scholar in Political Economy.
Wagner, Rose May, *Menasha.*
B. A., University of Wisconsin, Scholar in German.
Watt, Homer Andrew, *Wilkes-Barre, Pa.*
B. A., Cornell University, Fellow in English.
Weniger, Willibald, *Milwaukee.*
M. A., University of Wisconsin, Fellow in Physics.

*Resigned November 27, 1907.

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Whyte, John, *Watertown.*
M. A., University of Wisconsin, F. W. Allis Scholar in German.

Zoebel, Edgar Herman, *Ripon.*
B. A., Ripon College, Ripon College Graduate Scholar.

OTHER GRADUATES

Aldrich, Loyal Blaine, *Milwaukee.*
B. A., University of Wisconsin, Physics.

Allen, Rolland Craten, *Belleville.*
B. A., University of Wisconsin, Geology.

Allen, Ruth Florence, *Sturgeon Bay.*
M. A., University of Wisconsin, Botany.

Ambler, Charles Henry, *St. Marys, W. Va.*
M. A., West Virginia University, American History.

Andrews, John Bertram, *South Wayne.*
M. A., Dartmouth College, Political Economy

Arzberger, Emil Godfred, *Helenville.*
Ph. B., University of Wisconsin, Botany.

Ashmun, Margaret Eliza, *Waupaca.*
Ph. B., University of Wisconsin, English.

Aston, James, *Milwaukee.*
B. S., University of Wisconsin, Applied Electrochemistry.

Bailey, William Louis, *Gravenhurst, Ont., Can.*
M. A., Queen's University, Political Science.

Barrows, Harlan Harland, *Armada, Mich.*
B. S., University of Chicago, American History.

Bartholomew, Bruce, *Topeka, Kan.*
Ph. M., Simpson College, Mathematics.

Bartlett, James Lowell, *Madison.*
B. S., Massachusetts Agricultural College, Physics.

Becker, Charles Christopher, *Verona.*
B. A., Albion College, Political Economy.

Berkeley, Frances Campbell, *Morgantown, W. Va.*
M. A., Columbia University, English Literature.

Birge, Anna Grant, *Madison.*
B. A., University of Wisconsin, French.

Bissell, Elizabeth Cacendra, *Madison.*
B. S., University of Wisconsin, Mathematics.

Blakeman, Edward William, *Bloom City.*
B. A., Lawrence University, Political Economy.

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Bloomfield, Leonard, *Elkhart.*
B. A., Harvard University, German Philology and Literature.

Bole, Simeon James, *Athens, Mich.*
B. A., University of Michigan, Education.

Boström, Paul Gottfrid, *Wollsjo, Sweden.*
B. A., Ystad College (Sweden),
B. D., Augustana College, Latin.

Bowles, James Ten Broeck, *Madison.*
B. S., University of Michigan, Sanitary Chemistry.

Bradley, Mabel Josephine, *Madison.*
B. A., University of Wisconsin, French.

Brainard, Frank Kellogg, *Detroit, Mich.*
B. S., Michigan Agricultural College, Electrical Engineering.

Brandt, Joseph Granger, *Allen Grove.*
Ph. B., Lawrence University, Latin.

Brannon, James Marshall, *Dickinson, N. D.*
B. A., University of North Dakota, Botany.

Brannon, William Abbott, *Lowell, Ind.*
B. A., University of Kansas, Chemistry.

Brewer, Robert Kemp, *Mineral Point.*
B. A., University of Wisconsin, Physical Chemistry.

Bridgman, Benjamin Williams, *Madison.*
Ph. B., University of Wisconsin, Physics.

Briggs, George Wesley, *Cottage Grove.*
B. L., University of Wisconsin, Hellenistic Greek.

Broughton, Ray, *Evansville.*
B. A., University of Wisconsin, Sociology.

Burier, Karl Ormand, *Sunbury, O.*
B. S., Denison University, Electrical Engineering.

Bushnell, Leland David, *Bronson, Mich.*
B. S., Michigan Agricultural College, Bacteriology.

Camp, Anna Rachel, *Chicago, Ill.*
Ph. B., Western Reserve University, Horticulture.

Campbell, Robert Argyll, *Gurnee, Ill.*
B. A., University of Wisconsin, Political Economy.

Chase, Wayland Johnson, *Morgan Park, Ill.*
M. A., Brown University, United States History.

Clarke, Elvan Herman, *Dodge Center, Minn.*
B. S., Milton College, Physics.

Colburn, Guy Blandin, *Nashua, N. H.*
M. A., Brown University, Latin.

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Coleman, John, *Allegheny, Pa.*
B. A., Western University of Pennsylvania, Sociology.

Coleman, Roy V., *Milwaukee.*
B. A., Kansas University, European History.

Cook, Edward Albert, *Madison.*
B. L., University of Wisconsin, English.

Cool, Charles Dean, *Decatur, Ill.*
M. A., Harvard University, French.

Coulter, John Lee, *Grand Forks, N. D.*
M. A., University of North Dakota, Political Economy.

Dearborn, Walter Fenno, *Madison.*
Ph. D., Columbia University, Anatomy.

Deihl, Joseph Dwight, *Madison.*
B. A., Eureka College, German Literature.

Delwiche, Edmond Joseph, *Casco.*
B. S., University of Wisconsin, Horticulture.

Desmond, Cora Frances, *Madison.*
B. L., University of Wisconsin, English.

Du Mez, Andrew Grover, *Cashton.*
B. S. University of Wisconsin, Chemistry.

Duncalf, Fred, *Lancaster.*
B. A., Beloit College, European History.

Dye, Daniel Sheets, *New Matamoras, O.*
B. S., Denison University, Physics.

Eggert, William August, *Marshall.*
B. A., Northwestern University, German.

Evans, Magdalen, *Madison.*
B. A., University of Wisconsin, English.

Ewing, Elizabeth Learoyd, *Madison.*
B. A., Smith College, Miscellaneous.

Fjerestad, Alman, *Estelline, S. D.*
B. S., South Dakota Agricultural College, Electrical Engineering.

Flisch, Julia Anna, *Augusta, Ga.*
Lucy Cobb Institute, United States History.

Ford, Amelia Clewley, *Searsport, Me.*
M. A., University of Wisconsin, American History.

Forsythe, William Elmer, *Granville, O.*
B. S., Denison University, Physics.

Frankenberger, Margaret, *Madison.*
B. A., University of Wisconsin, German.

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Friedrich, Alexander Ernest, *Madison.*
LL. B., Georgetown University, English.

Gaarden, Oscar H., *Spring Valley.*
B. S., University of Wisconsin, Electrical Engineering.

Garver, James Russell, *Abilene, Kan.*
B. S., Kansas State Agricultural College, Animal Husbandry.

Gates, Charles Baldwin, *Wauwatosa.*
Ph. M., University of Wisconsin, Physical Chemistry.

Gattiker, Willis Alfred, *Baraboo.*
B. S., University of Wisconsin, Electrical Engineering.

Gauvran, Ethel Harned, *Brooklyn, N. Y.*
B. A., Adelphi College, English.

Glenz, Emma Louise, *Madison.*
B. A., Univerrity of Wisconsin, German Literature.

Goodrich, Thomas Victor, *Table Rock, Neb.*
B. A., University of Nebraska, American History.

Grey, Ernest George, *Milwaukee.*
B. A., University of Wisconsin, Antomy.

Griffin, James Sheldon, *Madison.*
B. A., Eureka College, French.

Grimes, Nathan Cesna, *Madison.*
B. A., University of Michigan, Mathematics.

Grove, Helen Theo, *Madison.*
B. A., University of W sconsin, Hebrew.

Hayden, Mary Estelle, *Sun Prairie.*
M. L., University of Wisconsin, English Literature.

Hegner, Robert Wilhelm, *Chicago, Ill.*
M. S., University of Chicago, Entomology and Zoology.

Heil, Herman Gustavus, *Chicago, Ill.*
Ph. B., University of Chicago, Physics.

Heilman, Ernest Alexander, *Redwood Falls, Minn.*
B. A., University of Minnesota, German Philology.

Helmholtz, Anna Augusta, *Madison.*
M. A., University of Wisconsin, English Literature.

Herrick, Louis Rowell, *Madison.*
B. S., Amherst College, French.

Hess, Ralph Henry, *Madison.*
M. S., Colorado Agricultural College. Political Economy.

Hickman, Mary Avis, *Jamestown, N. Y.*
M. A., De Pauw University, Botany.

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Higgins, Daniel Franklin, Jr., *Joliet, Ill.*
B. S., Norhtwestern University, Geology.
Hill, Charles Warren, *Jackson, Minn.*
M. A., University of Wisconsin, Inorganic Chemistry.
Holty, Edward Olaf, *Aurora, Ill.*
B. L., University of Wisconsin, European History.
Ichinomiya, Kaneo, *Tokio, Japan.*
Graduate of the Tokio Higher Commercial College, Political Economy.
Inglis, David Nelson, *Marquette.*
B. A., Milton College, French.
Ives, George, *Fort Atkinson.*
B. A., University of Wisconsin, Anatomy.
Izumi, Akira, *Hakkaido, Japan.*
B. A., Lake Forest University, Political Science.
James, Albert Earl, *Madison.*
B. A., University of Wisconsin, Political Economy.
Jefferson, Lorian Pamelia, *Baraboo.*
M. A., University of Wisconsin, Political Economy.
Johnson, Arden Richard, *Stoughton.*
B. S., University of Wisconsin, Physical Chemistry.
Jolivette, Hally Delia Mary, *La Crosse.*
B. A., University of Wisconsin, Botany
Jones, Edward Richard, *Bangor.*
B. S. A., University of Wisconsin, Soil Physics.
Keith, Oscar Lovell, *Athens, Ga.*
M. A., Harvard University, French.
Kenney, James Francis, *Belleville, Ont., Can.*
B. A., University of Toronto, European History.
Kenyon, Elizabeth Watson, *Madison.*
M. A., Brown University, Political Science.
Ketelle, Mary Aberdeen, *Madison.*
B. A., Hastings College, Latin.
Kissling, Arthur Charles, *Milwaukee.*
B. A., University of Wisconsin, Anatomy.
Knight, Henry Seymour, *Troy, N. Y.*
B. A., Williams College, Hellenistic Greek.
Koch, Alfred Richard, *Alton, Ill.*
B. S., University of Illinois, Physical Chemistry.
Kowalke, Otto Louis, *South Kaukauna.*
B. S., University of Wisconsin, Applied Electrochemistry.
Krauskopf, Francis Craig, *Madison.*
M. A., University of Wisconsin, Physical Chemistry.

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Kroesche, August Friedrich Christ, *Madison.*
B. S., Northern Illinois Normal School, Philosophy.
B. A., German Theological School of the Northwest,
Kuhns, Hattie, *Madison.*
B. A., University of Wisconsin, Latin.
Laird, Melvin Robert, *Prairie du Sac.*
B. A., University of Illinois, Ethics.
Lambeck, Arthur Hugo, *Milwaukee.*
B. A., University of Wisconsin, Political Science.
La Motte, Frank Alexander, *Madison.*
M. S., University of Chicago, Romance Languages.
Larson, Alfred, *Wausau.*
B. A., University of Wisconsin, Bacteriology.
Le Febvre, Clarence Charles, *Green Bay.*
B. A., University of Wisconsin, Chemistry.
Lescohier, Don Divance, *Grand Ledge, Mich.*
M. A., Albion College, Political Economy.
Lipman, Charles Bernard, *Woodbine, N. J.*
B. S., Rutgers College, Bacteriology.
Long, George Emerson, *Napoleon, O.*
B. A., Indiana University, Applied Electrochemistry.
Lundberg, Emma Octavia, *Rockford, Ill.*
B. A., University of Wisconsin, English.
*Lynch, William Orlando, *Elkhart, Ind.*
B. A., Indiana University, American History.
McCrady, Mac Harvey, *Lancaster.*
B. S., Beloit College, Mechanics.
McDaniel, Alonzo Simpson, *Lebanon, Ind.*
M. A., University of Wisconsin, Physical Chemistry.
McFadden, Mary Isabel, *Oconto.*
Ph. B., University of Wisconsin, Education.
MacVannel, Alexander Peter, *Madison.*
B. S. A., Ontario Agricultural College, Agronomy.
McVicar, Katharine Eunice, *Waukesha.*
B. L., University of Wisconsin, English.
March, Herman William, *Ocheyedan, Ia.*
M. A., University of Michigan, Mathematics.
Marston, Charles Emerson, *Springfield, Mo.*
B. S., Drury College, Political Economy.
Martin, Nellie Jean, *Madison.*
B. A., Beloit College, English.

*In absentia.

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Martin, William Francis,	*Beloit.*
B. A., Beloit College,	History.
Mead, Warren Judson,	*Plymouth.*
B. S., University of Wisconsin,	Geology.
Merrell, George Clark,	*Ripon.*
B. A., Ripon College,	Sanitary Engineering.
Michelson, Albert G.,	*Mt. Horeb.*
B. L., University of Wisconsin,	Political Science.
Milward, James Garfield,	*Madison.*
B. S. A., University of Wisconsin,	Horticulture.
Murdock, Louise Hamilton,	*Madison.*
B. A., Boston University,	Sociology.
Nelson, Oliver Otto,	*Madison.*
B. A., University of Wisconsin,	Anatomy.
Newell, Jane Isabel,	*Philadelphia, Pa.*
B. A., Wellesley College,	American History.
Nichols, Roy Theodore,	*River Falls.*
Ph. B., University of Wisconsin,	Anatomy.
Nordlie, Herman Clarence,	*Deerfield.*
B. A., Luther College,	European History.
Northrop, George Norton,	*Madison.*
M. A., University of Minnesota,	English Literaure.
Notz, William Frederick,	*Watertown.*
M. A., University of Wisconsin,	Hebrew.
Olson, George Alfred,	*Madison.*
B. S. A., University of Wisconsin,	Agricultural Chemistry.
Orcutt, Allie Julia,	*Northfield, Minn.*
B. L., Carleton College,	Mathematics.
Osgood, Irene,	*Madison.*
B. A., University of Wisconsin,	Sociology.
Oswald, Frederick William, Jr.,	*Brooklyn, N. Y.*
M. A., Cornell University,	German.
Owen, Emily Pratt,	*Madison.*
B. A., Smith College,	Spanish.
Plagge, Herbert John,	*Barrington, Ill.*
B. S., Northwestern University,	Physics.
Richards, Jesse Laurence,	*Randolph.*
B. A., University of Wisconsin,	Physics.
Rogers, Augustus James, Jr.,	*Milwaukee.*
B. S. A., University of Wisconsin,	Horticulture.
Roloff, Walter Edward,	*Barrington, Ill.*
M. A., Northwestern University,	German Literature.

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Sandford, Herbert Brooks, B. S., University of Wisconsin,	*Madison.* Alternating Currents.
Schaeuble, Sophia Marie, B. A., Miama University,	*Hamilton, O.* German.
Schilling, Wilber Henry, B. S., Iowa College,	*State Center, Ia.* History.
Schlatter, Edward Bunker, M. A., Harvard University,	*Brooklyn, N. Y.* Romance Philology.
Schneider, Francis Lee, B. A., University of Wisconsin,	*West Salem.* Hellenistic Greek.
Scott, Jonathan French, M. A., Rutgers College,	*New Brunswick, N. J.* European History.
Scott, Robert Bruce, Ph. B., University of Pennsylvania,	*Madison.* Political Science.
Shaff, J. Ostrander, B. S. A., Iowa State College,	*Camanche, Ia.* Animal Husbandry.
Shannahan, Willard Dean, B. A., Williams College,	*Green Island, N. Y.* Latin.
*Sharpe, Theodore Thomas, Ph. B., Missouri Wesleyan University,	*Waldo.* Sociology.
Sheets, Nellie Florence, B. A., Ohio State University,	*Columbus, O.* Political Economy.
Smith, Edwin Raymond, B. A., University of Illinois,	*Madison.* Mathematics.
Spradling, Birney Davis, B. A., Earlham College,	*Rushville, Ind.* Political Economy.
Stanton, Margaret Beumont, B. S., Iowa State College,	*Ames, Ia.* American History.
Steele, Elizabeth Sumner, B. L., Smith College,	*Madison.* English.
Steidtman, Edward, M. A., University of Wisconsin,	*Prairie du Sac.* Geology.
Steve, William Frederick, P. B., University of Wisconsin,	*Madison.* Physics.
Stevens, Don Search, B. A., University of Michigan,	*Ann Arbor, Mich.* Political Economy.
Stoddart, Charles William, M. A., Columbia University,	*Madison.* Chemistry.
Sumner, Helen Laura, B. A., Wellesley College	*Denver, Colo.* Political Economy.

*In absentia.

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Surrey, Nancy Maria Miller,	*Madison.*
B. S., University of Chicago,	American History.
Sutherland, Arthur Howard,	*Grand Island, Neb.*
B. A., Grand Island College,	Psychology.
Swarthout, Susie,	*La Crosse.*
B. S., University of Wisconsin,	Education.
Taggart, David Raymond,	*Beaver Falls, Pa.*
B. A., Geneva College,	Political Economy.
Teisberg, Halvor Orlando,	*Cottage Grove.*
B. A., University of Wisconsin	History.
Terry, Earle Melvin,	*Battle Creek, Mich.*
M: A., University of Wisconsin,	Physics.
vonTeubern, Ernst Freiherr,	*Oelsnitz, Germany.*
University of Leipzig,	Political Science.
Thwaites, Fredrik Turville,	*Madison.*
B. A., University of Wisconsin,	Geology.
Tibbals, Charles Austin, Jr.,	*Madison.*
M. A., University of Wisconsin,	Inorganic Chemistry.
Titsworth, Paul Emerson,	*Alfred, N. Y.*
Ph. B., Alfred University,	German.
Titsworth, Waldo Alberti,	*New Brunswick, N. J.*
M. A., Alfred University,	Physics.
Tomimoto, Shigeru,	*Osaka, Japan.*
B. A., University of Waseda,	Political Economy.
Tottingham, William Edward,	*Bernardston, Mass.*
B. S., Massachusetts Agricultural College	Agricultural Chemistry.
True, Helen Elizabeth,	*Rochester, N. Y.*
B. A., Vassar College,	History.
Tuthill, James Edward,	*Madison.*
M. A., University of Missouri,	European History.
Usher, Robert James,	*South Wayne.*
B. A., University of Wisconsin,	Political Economy.
Vance, Mildred Ethel,	*Crete, Neb.*
B. A., Doane College,	Mediaeval History.
Verran, Laura Ellen,	*Madison.*
Ph. M., University of Wisconsin,	Sociology.
Volkman, Alice May,	*Louisville, Ky.*
B. A., Kentucky State College,	English Literature.
Vorhies, Charles Taylor,	*Madison.*
B. S., Iowa Wesleyan University,	Zoology.
Wadsworth, William John,	*Madison.*
B. S., University of Wisconsin,	Electrical Engineering.

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Weber, August William, *Madison.*
Ph. M., University of Wisconsin, Education.
Wheelwright, Orville William, *Belleville.*
B. A., University of Wisconsin, Economic Geology.
White, Melvin Johnson, *Madison.*
M. A., University of Wisconsin, American History.
White, Rhoda Mabel, *Madison.*
B. A., University of Wisconsin, Sociology.
Wilcox, Wendell Garrett, *Spencerport, N. Y.*
Ph. M., Syracuse University, Physical Chemistry.
Wild, Edmund, *Madison.*
M. A., University of Texas, German Literature.
Winslow, Horatio Gates, *Madison.*
B. A., University of Wisconsin, Anatomy.
Wolesensky, Edward, Crete, Neb.
M. A., University of Wisconsin, Inorganic Chemistry.
Wolff, Henry Charles, *Madison.*
M. S., University of Wisconsin, Mathematics.
Worley, Charlotte Cornell, *Crawford, Neb.*
M. A., University of Nebraska, History.
Wright, Colin Wilson, Jr., *Monroe.*
B. A., University of Wisconsin, United States History.
Yoshida, Yosaburo, *Omi, Japan.*
Graduate of Waseda University, Political Economy.
Young, Mary Gertrude, *East Palmyra, N. Y.*
B. A., Cornell University, American History.
Yuchi, Sadatake, *Sapporo, Japan.*
Sappora Agricultural College, Animal Husbandry.
Zapffe, Carl, *Milwaukee.*
B. S., University of Wisconsin, Petrology.
Zillsch, Ina Antonette, *Mayville.*
B. S., Northwestern University, German.
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UNDERGRADUATES

COLLEGE OF LETTERS AND SCIENCE

SENIORS

Alcuzar, Isaac, *Williamsport, Pa.*
Armstrong, Susan Naylor, *Madison.*
Augspurger, Louis Fred, *Sheboygan.*
Barnes, Rufus Alexander, *Elkhorn.*

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Baumeister, Theodore Anton,	*Kewaunee.*
Beath, John William,	*Verona.*
Beath, Orville Andrew,	*Verona.*
Benton, Homer Herrington,	*Richland Center.*
Besley, Harold Joslyn,	*Waukegan, Ill.*
Bishop, Burnette Orville,	*Racine.*
Bitter, Elsa Anna,	*Sheboygan.*
Blake, Ambrose Barnum,	*Huron, S. D.*
Blankenagel, John Carl,	*Hartford.*
Blatz, Gustave Grover,	*Milwaukee.*
Bogue, Grace Anna,	*Poynette.*
Bollenbeck, William Joseph,	*Madison.*
Boorman, Leal Mary,	*Madison.*
Borresen, Alice Julia,	*La Crosse.*
Breitkreutz, Adeline Albertine,	*Wausau.*
Brennecke, Alvina Mary,	*Watertown.*
Bresee, Emily May,	*Madison.*
Brindley, Elbert Edwin,	*Richland Center.*
Brown, Edna M.,	*Rhinelander.*
Brown, Florence Mary,	*Spring Green.*
Brown, Webster Anderson,	*Rhinelander.*
Caine, Ethel Mary,	*Milwaukee.*
Canan, Cuba Quincy,	*La Crosse.*
Carpenter, Mae Louise,	*Madison.*
Carr, Lucina Langworthy,	*Madison.*
Cary, Myra Treat,	*Madison.*
Casey, Edwina Mary,	*Madison.*
Cashel, Morris Joseph,	*Grafton, N. D.*
Churchill, Charlotte Amelia,	*Monroe.*
Churchill, Ethel Elizabeth,	*Monroe.*
Cleary, Frances Ada,	*Platteville.*
Clifford, Cecil Leslie,	*Madison.*
Coleman, Bessie Rachael,	*Madison.*
Colignon, John Joseph,	*Sturgeon Bay.*
Crawford, Helen Jennings,	*Hazel Green.*
Currie, Alice Mary,	*Milwaukee.*
Davenport, Audrey Amazon,	*Madison.*
Davison, Walter Bert,	*Clear Lake.*
DeCou, Robert Austin,	*Madison.*
DeSautell, William Thomas,	*La Crosse.*
Diemer, Melvin Edison,	*Dakota, Ill.*

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Dohmen, Fred Wentworth,	*Milwaukee.*
Driver, Hazel,	*Darlington.*
Eastman, Miriam Elizabeth,	*Plymouth.*
Elliott, Cosalette,	*Batavia, Ill.*
Enright, Frances Catherine,	*Troy Center.*
Erb, Louise Ernestine,	*Appleton.*
Evans, Alice,	*Madison.*
Evans, Gertrude Catherine,	*Madison.*
Falk, Rolf Orlando,	*Stoughton.*
Faucett, Frances,	*Laurium, Mich.*
Finlen, Gertrude Hurford,	*Streator, Ill.*
Flick, Ernest Clinton,	*Augusta.*
Flint, Helen,	*Madison.*
Floete, Franklin Grotewohl,	*Armour, S. D.*
Frost, Raymond Baker,	*Madison.*
Gaebler, Hans David,	*Watertown.*
Gangstad, Ida Marie,	*Deerfield.*
Gay, Delgracia Barbara,	*Madison.*
Gay, Mary Elizabeth,	*Madison.*
Gilkey, Mabel Elma,	*Oshkosh.*
Goldschmidt, William Jacob,	*Milwaukee.*
Gordon, Nellie Elsie,	*Waupaca.*
Greubel, Otto Washington,	*Milwaukee.*
Greverus, Jenos,	*Berlin.*
Grobe, Edward Henry,	*Menomonie.*
Gronert, Theodore,	*Prairie du Chien.*
Gruenewald, Arthur Herrmann,	*Oshkosh.*
Gruhl, Edwin Frederick,	*Milwaukee.*
Gutsch, Milton Adolph,	*Sheboygan.*
Hambrecht, Elizabeth Lois,	*Madison.*
Hannan, William Frawley,	*Milwaukee.*
Hayes, Catherine Elizabeth,	*La Crosse.*
Heinz, Adolph,	*Madison.*
Hewitt, George Walter,	*Oshkosh.*
Hildebrand, Ruby Zaidee,	*Milwaukee.*
Hirsch, Marx,	*Corpus Christi, Tex.*
Holcomb, Wilber,	*La Crosse.*
Holmes, Edna Dorothea,	*Milwaukee.*
Hopson, Amy Jane,	*Madison.*
Horan, Lenore Margaret,	*Eau Claire.*
Howe, Josephine,	*Meadville, Pa.*

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Hutson, Harriet Mae,	*Madison.*
Jamieson, Laura Belle,	*Poynette.*
Jenkins, Deborah May,	*Elroy.*
Jennings, Ruth Leland,	*Madison.*
Jensen, Ellen Marie,	*Waupaca.*
Joeckel, Carleton Bruns,	*Lake Mills.*
Johnson, J. Cornelius,	*Madison.*
Jones, Edwin Converse,	*Portage.*
Joslin, Elizabeth Verran,	*Madison.*
Kahl, Emma Jeannette,	*Madison.*
Kasten, Marie Antoinette,	*Milwaukee.*
Kirby, Ethel Louisa,	*Milwaukee.*
Knüppel, Arnold Ewald,	*Appleton.*
Küstermann, Walter Wolleben,	*Madison.*
Larsen, Charles Sumner,	*Green Bay.*
Leaper, Warren Engene,	*Green Bay.*
Lehmann, Van V.,	*Neosho.*
Leiserson, William Morris,	*Madison.*
Leui, Hattie Susan,	*Postville, Ia.*
Lewis, Eva Grace,	*Racine.*
Libby, Caroline Gail,	*Indianapolis, Ind.*
Lindstrem, Jeannette Marie Emily,	*Oconto.*
Lloyd, Hubert Evan,	*Cambria.*
Longfield, Mary Fidelia,	*Madison.*
Losse, Herbert Alfred,	*Milwaukee.*
Lounsbury, Sylvia Elizabeth,	*Madison.*
Mac Arthur, Isabella,	*Superior.*
Mac Kowen, Harriett Estelle,	*West Allis.*
Mac Murtery, Katherine,	*Madison.*
Macomber, Winifred Carr,	*Tomahawk.*
Manor, Emma Elizabeth,	*Baraboo.*
Martin, Anne Dodge,	*Darlington.*
Mathews, George Clyde,	*Burlington.*
Meier, Amy Katherine,	*Postville, Ia.*
Melaas, Alva Jeanette,	*Stoughton.*
Melby, Elizabeth,	*Merrillan.*
Mercein, Charles Schley,	*Milwaukee.*
Merica, Paul,	*Warsaw, Ind.*
Merrill, Winifred Byrne,	*Ashland.*
Messerschmidt, Adeline Schlaefer,	*Madison.*
Mills, Jean,	*Madison.*

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Milward, Daisy,	*Madison.*
Moe, Josephine Margaretta,	*Pensaukee.*
Morrison, Ethel,	*Pawnee City, Neb.*
Moser, Hildred Daisy,	*Madison.*
Muenster, Ernest, Jr.,	*New Holstein.*
Mulany, John Valentine,	*East Troy.*
*Munson, Helen Alice,	*Viroqua.*
Murchison, Hettie Maria,	*Madison.*
Myers, Harold Bunce,	*Janesville.*
Myers, Louise,	*Ottumwa, Ia.*
Nebel, Walter,	*Madison.*
Nelson, Carl Ferdinand,	*Rockford, Ill.*
Neprud, Nora,	*Westby.*
Oeland, Legare Logan,	*Madison.*
Parker, Amy,	*Fennimore.*
Parmelee, Reynale Mary,	*Sheboygan.*
Patterson, Mark Lawrence,	*Baraboo.*
Peshak, Josephine Angeline,	*Sun Prairie.*
Pilgrim, Mary Grace,	*New Richmond.*
Pope, Rosa Matilda,	*Racine.*
Potter, Paul David,	*Madison.*
Rademaker, Oscar,	*Madison.*
Rankin, Carrie Adela,	*Waukesha.*
Rankin, Edward Ira,	*Fort Atkinson.*
Rayne, Mary Elizabeth,	*Madison.*
Rehm, Walter Arthur,	*Chicago, Ill.*
Retelstorf, Caroline Dorothea,	*Menomonie.*
Rice, Eleva May,	*Sparta.*
Rietow, Rhoda Henryetta,	*Sheboygan.*
Robinson, Edgar Engene,	*Oconomowoc.*
Roehl, Julius Otto,	*Milwaukee.*
Roehr, Roland Blackstone,	*Milwaukee.*
Roller, Julann Anna,	*Madison.*
Rubin, Joseph Maccabee,	*Leipzig, Germany.*
Rupert, Lewis L.,	*Spencerville, O.*
Rutte, Joseph Walter,	*Pella.*
Sabin, Ethel Ernestine,	*Geddes, S. D.*
Saby, Anna Gunella,	*Baldwin.*
Schorer, Oscar Charles,	*Plymouth.*

*Died January 26, 1908.

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Schreiner, Hildur Betzy Helena,	*Westby.*
Schuppert, William Louis,	*Milwaukee.*
Segerstrom, Signe,	*Rhinelander.*
Sexton, Walter Gresham,	*Marshfield.*
Shatto, Edith May,	*Madison.*
Sheets, Geneva Frances,	*Madison.*
Sheets, George Marsh,	*Madison.*
Shiels, Lena May,	*Madison.*
Sieb, Zettie Ethel,	*Racine.*
Simon, Florence Ann,	*La Crosse.*
Simons, Dora May,	*Shawno.*
Skinner, John Sharp,	*Princeton, Ill.*
Sletten, Obert,	*La Crosse.*
Smith, Charles Forster, Jr.,	*Madison.*
Smith, Maud Emily,	*Madison.*
Smith, William Harvey, Jr.,	*Mamaroneck, N. Y.*
Spence, Mary Leslie,	*Madison.*
Stark, Charles William,	*Tiffany.*
Stark, Laura Sophia,	*Madison.*
Stavrum, Esther Aletta,	*La Crosse.*
Steenbock, Helen Christine,	*Madison.*
Steinfort, Elvira Bertha,	*Watertown.*
Stempfel, Theodore C., Jr.,	*Indianapolis, Ind.*
Stephenson, Willard, L.,	*South Bend, Ind.*
Stevens, Anna Jessamine,	*Evansville.*
Stoddard, Elizabeth Shute,	*Janesville.*
Stoehr, Joseph,	*Lynnville.*
Swenson, Edith Dinsdale,	*Madison.*
Swenson, Victor Gerhard,	*Madison.*
Talbot, Roy Maxwell,	*Madison.*
Tate, Edythe Lucy Miller,	*Milwaukee.*
Taylor, Florence Wills,	*Linden.*
Terry, Maude Lenore,	*Brodhead.*
Theobald, Monte Josephine,	*Wayne, Neb.*
Thode, Louise Christine,	*Dexter, N. M.*
Thomas, Ethel May,	*Superior.*
Townsend, Elizabeth Hasselle,	*Oconomowoc.*
Traill, Mona Susie,	*Chicago, Ill.*
Upson, Lent Dayton,	*Rockford, Ill.*
Van Slyke, Ruth Corbett,	*Madison.*
Vaughan, Lulu,	*Wauzeka.*

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Vinal, Velma Hersey,	*Appleton.*
Wahl, Harry Roswell,	*Stratford.*
Walker, Louise Estelle,	*Madison.*
Wallace, Eugene Edwards,	*Galena, Ill.*
Wallin, Jennie Belden,	*Prairie du Chien.*
Walter, Minnie Adelle,	*Berlin.*
Weber, Lynda Marguerite,	*New Holstein.*
Wehausen, Edna Grace,	*Madison.*
Wertz, Martha Robinson,	*Forreston, Ill.*
Wheelock, Lydia,	*Stevens Point.*
White, Ethel Sylvia,	*Deerfield.*
Whitelaw, Mary Reid,	*Portage.*
Whitmore, Alba Daniel,	*Lyons.*
Wieman, Henry Krumsiek,	*Watertown.*
Wightman, Mildred Isabelle,	*Elroy.*
Wittich, Walter Julius,	*Milwaukee.*
Woffenden, Adah Anastasia,	*Bloomington.*
Wright, Horace Wetherill,	*Madison.*

Course in Commerce

Auer, Frank Cleveland,	*Eau Claire.*
Averill, George Baxter, Jr.,	*Whitewater.*
Crossman, Roland Derry,	*Fall River.*
Dittman, Fred August,	*La Crosse.*
Elerman, Arthur Charles,	*Milwaukee.*
Elwell, Fayette Herbert,	*McGregor, Ia.*
Hayes, John Robert,	*La Crosse.*
Hefty, Thomas Rudolph,	*New Glarus.*
Hickcox, Frank Thomas Clark,	*Spring Green.*
Hopkins, Claudius Marion,	*Fennimore.*
Kemp, Walter John,	*Tipton, Ind.*
Krauthoefer, Emory William,	*Milwaukee.*
Kypke, Pierre August,	*Madison.*
Luder, Arthur Frank,	*Baraboo.*
Lumsden, Robert Roy,	*Elroy.*
Meves, Walter Henry,	*Sheboygan.*
Meyer, Herman Fred,	*Madison.*
Myers, Percy Harold,	*Milwaukee.*
Oliver, Edward James,	*Hudson.*
Rice, Felix G.,	*Milwaukee.*
Sanborn, Raymond Parker,	*Portage.*

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Schiess, Roy Edward,	*Chicago, Ill.*
Slade, Mott Thomas,	*Slade's Corners.*
Soukup, Rudolph,	*Sturgeon Bay.*
Stroud, Ray Morris,	*Portage.*
Tarbox, Charles William,	*La Crosse.*
Walvoord, Anthony,	*Sheboygan.*

Course for Normal School Graduates

Barnes, Volney Goodrich,	*Madison.*
Bewick, Grace Beatrice,	*Madison.*
Buresh, Anthony Edward,	*Racine.*
Gallagher, Carolyn Eleanor,	*Deerfield.*
Gesell, Gerhard Adam,	*Madison.*
Hair, Margaret Coral,	*Ashland.*
Hammond, Ellen,	*Westfield.*
Hilgendorf, Fred William,	*Madison.*
Hillemann, Ada Cecile,	*Sheboygan.*
Jones, Myrtle Estelle,	*Seattle, Wash.*
Krollkamp, Christian Joseph,	*Allenton.*
Leins, Lenore,	*West Bend.*
Liessmann, Alma Louise,	*Reedsburg.*
McMahon, Edward Michael,	*Milwaukee.*
Mueller, Emy Caroline,	*Milwaukee.*
Polzin, Benjamin Albert,	*Madison.*
Russell, William Giles,	*Eau Claire.*
Shannon, James William,	*Oconomowoc.*
Steele, Nellie Gertrude,	*Whitewater.*
Stevens, Leta Lucile,	*Montfort.*
Stevens, Velma Sylvester,	*Montfort.*
Stiehm, Herman William Henry,	*Johnson Creek.*
Tighe, Benjamin Bennett C.,	*Clinton.*
Williams, Elizabeth Anne,	*Racine.*
Wilson, L. Elizabeth,	*Madison.*

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JUNIORS

Albers, Frances Clark,	*Madison.*
Alford, Alice Irene,	*Madison.*
Allen, Ruth Alice,	*Lake Geneva.*
Anderson, Achsah Cornelia,	*Milwaukee.*
Baer, Edna Leola Violet,	*Hartford.*

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Barr, Florence Edith,	*Kenosha.*
Barry, Mary Regina,	*Oregon.*
Bartlett, Ferdinand von Arlt,	*Milwaukee.*
Baumgarth, Elsie Magdalena,	*Prairie du Sac.*
Becker, Kathryn Christina,	*Watertown.*
Bergh, Lona Irene,	*Madison.*
Bessey, John Mack,	*Milwaukee.*
Beye, Howard Lombard,	*Oak Park, Ill.*
Billings, Goodsell Barney,	*Cobb.*
Birge, Raymond Thayer,	*Troy, N. Y.*
Bissell, Lucetta Orpha,	*Hutchinson, Minn.*
Bissell, Wayne William,	*Lodi.*
Bower, Marguerite,	*Clarkston, Mich.*
Bowyer, Helen Emily,	*Murillo, Ont., Can.*
Boyd, Alma Marie,	*Madison.*
Bram, Hazel Ella,	*Madison.*
Brandenburg, Frederick Sarles,	*Madison.*
Bridgman, Robert White,	*Madison.*
Brown, Elizabeth,	*Madison.*
Buchen, Gustave William,	*Sheboygan.*
Burgess, Kenneth Farwell,	*Oshkosh.*
Burnham, Dorothy Marie,	*Madison.*
Burnham, Ethel Romelia,	*La Crosse.*
Butler, Anna Isabel,	*Madison.*
Cady, Grace Raymond,	*Reedsburg.*
Caradine, Elva, Jane,	*Monroe.*
Castle, Sidney Lester,	*Chicago, Ill.*
Castle, Ward Church,	*Chicago, Ill.*
Clark, Ethel Bough,	*McGregor, Ia.*
Cochrane, Ava Luella,	*Madison.*
Coleman, Herbert Clinton,	*Lowell.*
Comstock, Amy,	*Milwaukee.*
Confer, Edna Lorene,	*Madison.*
Conger, Louis Herbert,	*Milwaukee.*
Cooper, Belva Naomi,	*Madison.*
Cornelius, Laura Minnie,	*Seymour.*
Cronin, Clara Margaret,	*Madison.*
Cudahy, Michael Francis,	*Milwaukee.*
Culver, Harry,	*Cobb.*
Cunningham, Carl Jefferson,	*Chippewa Falls.*
Curtis, Martha Elizabeth,	*Madison.*

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Daniells, William Nathaniel,	*Madison.*
Desmond, James Francis,	*Madison.*
Diederich, Victor Peter,	*Madison.*
Dinan, Alice Pearl,	*Fargo, N. D.*
Dinet, Eugene Augustus,	*Joliet, Ill.*
Dixon, Raymond Ephraim,	*Kingston.*
Doe, Ethelyn Anna,	*Elgin, Ill.*
Donaldson, Jean Watt,	*McGregor, Ia.*
Donovan, Katherine Agnes,	*Madison.*
Downing, Frederick Price,	*Watertown.*
Dunn, Anna Regina,	*Madison.*
Edwards, Laura Sarah,	*Oshkosh.*
Evans, Charles Floyd,	*Muscoda.*
Fass, Hugo, William,	*Milwaukee.*
Fisher, Roland Friederich,	*Baraboo.*
Fitch, Helen Fairfield,	*Mason City, Ia.*
Flynn, Michael Henry,	*Hartford.*
Frodermann, Emma,	*Milwaukee.*
Gamble, Sarah Estella,	*Moline, Ill.*
Gapen, Jane Bopeep,	*Madison.*
Gardiner, Charlotte Georgia,	*Madison.*
Gedney, Kathrene Sutherland,	*Onalaska.*
Gilkey, Edna Annie,	*Oshkosh.*
Gingrich, Mabel Aseneth,	*Rockford, Ill.*
Gloyer, Walter Oscar,	*Milwaukee.*
Godfrey, Rush Clayton,	*Lancaster.*
Goldenberger, Olivia Monona,	*Madison.*
Greene, Eunice Genevieve,	*Madison.*
Gregory, Marie,	*West De Pere.*
Griswold, Chester Arthur.	*Waukesha.*
Grover, Alice Mary,	*Madison.*
Gunther, Otto,	*Sheboygan.*
Gunther, Theodore John,	*Sheboygan.*
Haman, Jennie Emilie,	*Milwaukee.*
Hamann, Friederich Arthur,	*Madison.*
Handt, Hazel Carolyn,	*Fond du Lac.*
Harding, Harriet Agnes,	*Chicago, Ill.*
Hayes, Mae Estelle,	*Janesville.*
Hart, Arthur Eugene,	*Turtle Lake.*
Heath, Helen Morton,	*Chicago, Ill.*
Heise, George William,	*Milwaukee.*

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Helmholz, Henry Albert,	*Madison.*
Henry, Alice Aline,	*Elroy.*
Heuer, Josephine,	*Madison.*
Hibbard, Clarence Addison,	*Racine.*
Higbee, Hazel Bessex,	*Madison.*
Hinn, Alma, Katherine,	*Fennimore.*
Hints, Richard Francis,	*Monticello.*
Hochstein, Irma,	*Milwaukee.*
Hoegh, Nanna Marie,	*Spring Grove, Minn.*
Hogan, James Mangan,	*Fond du Lac.*
Holmes, Arthur Thomas,	*La Crosse.*
Holmes, Emily Evelyn,	*Baldwin.*
Holston, Anna,	*Ashland.*
Homuth, Erwin Silas,	*Madison.*
Hopkins, Mary Wright,	*Pueblo, Colo.*
Hosmer, Helen,	*Ashland.*
Hoyt, Grace Elizabeth,	*Madison.*
Hudson, Philip Loren,	*Mazomanie.*
Huggins, Carrie Belle Louise,	*Madison.*
Immell, Lois Constance,	*Denver, Colo.*
Johnson, John Hugo,	*Des Moines, Ia.*
Johnson, Nina,	*Kokomo, Ind.*
Juergens, Carl Henry,	*Madison.*
Jung, Ernst,	*Milwaukee.*
Kalmbach, Mabel Lorena,	*Sturgeon Bay.*
Kaye, Sara Elizabeth,	*Calmar, Ia.*
Kayser Stella Otillia,	*Madison.*
Keho, Joseph,	*Tacoma, Wash.*
Kelly, Mary Margaret,	*La Crosse.*
King, Mary Ann,	*Spring Green.*
Kirwan, Jeanne Mabel,	*Bartlesville, I. T.*
Kleinheinz, Caroline,	*Madison.*
Krause, Lenore,	*Yankton, S. D.*
Kreutzer, Ellen Marie,	*Sawyer.*
Krumrey, Adelaide,	*Plymouth.*
Kurtenacker, Lilly Margaret,	*La Crosse.*
Lachmund, Clara,	*Milwaukee.*
Leary, Agnes Veronica,	*Madison.*
Le Clerc, Genevieve Marguarite,	*Milwaukee.*
Lewis, Isabell Meekin,	*Fond du Lac.*
Lewis, Martha Ellen,	*Madison.*

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Lewis, Read,	*Oak Park, Ill.*
Lindemer, Louise Bunnell,	*Milwaukee.*
Linkfield, Hazel Frances,	*Elgin, Ill.*
Lochner, Louis Paul,	*Milwaukee.*
Longfield, Mary Ellen,	*Madison.*
Loomis, Huldah Mary,	*Boonville, N. Y.*
Lyle, Margaret Blanche,	*Madison.*
Malone, Edward Samuel,	*Rhinelander.*
Malone, James Francis,	*Juneau.*
Manning, Florence Edna,	*Belvidere, Ill.*
Mathie, Edward Joseph,	*Stevens Point.*
Maurer, Otto,	*Willsbach, Germany.*
McConville, George Terrance,	*Fargo, N. D.*
McDaniel, Moses,	*Brooklyn, Ind.*
McDermott, Frank,	*Darlington.*
McKelvey, Arthur Wilson,	*Sparta, Ill.*
Melick, Alyce Marguerite,	*Dodgeville.*
Melick, Gladys Ennor,	*Dodgeville.*
Mertz, Aline Adeline,	*Madison.*
Meyer, Lydia Lucile,	*Milwaukee.*
Minnick, Asa Morrill,	*New Lisbon.*
Moffat, Mary Elizabeth,	*Davenport, Ia.*
Monshau, Carl Eshe,	*Evansville.*
More, Allison,	*Sioux City, Ia.*
Morris, Paul Joseph,	*Congress Park, Ill.*
Moss, Ruth Elizabeth,	*Milwaukee.*
Moss, Theda Antoinette,	*Milwaukee.*
Murphy, Nellie Christine,	*Evanston, Ill.*
Nelson, Olga Theresa,	*Racine.*
Newcomer, Harry Sidney,	*Pittsburgh, Pa.*
Noe, Paul William,	*Milwaukee.*
Owens, Lois May,	*Wauwatosa.*
Owens, Lylia Jeanette,	*Madison.*
Peabody, Marion Grace,	*Madison.*
Pearce, Charles Chester,	*Dodgeville.*
Pease, Halley Anna,	*Chicago, Ill.*
Peltier, George Leo,	*Grand Rapids.*
Peterson, Basil Irvin,	*Blair.*
Pfeifer, Mary Jane,	*Sheboygan Falls.*
Phillips, Blanche Beulah,	*Sioux City, Ia.*
Pomeroy, Lilla Mary,	*Oconomowoc.*

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Post, Kate,	*Madison.*
Pressentin, Marie Louise,	*Madison.*
Price, Beulah May,	*Madison.*
Pugh, Laura,	*Portage.*
Putnam, May Margarette,	*Madison.*
Quarles, Henry Capron,	*Milwaukee.*
Rapps, Grover Herman,	*Milwaukee.*
Riley, William Henry,	*Altoona.*
Robison, Aleta,	*Oconomowoc.*
Rodabaugh, Jesse Lawrence,	*Williamstown, O.*
Roehm, Florence C.,	*Calumet, Mich.*
Roehm, Mary Margaret,	*Calumet, Mich.*
Roloff, Edna Arlisle,	*Madison.*
Rose, Floy Gladys,	*Honey Creek.*
Rosencrans, Blanche Louise,	*Kansas City, Mo*
Rossberg-Leipnitz, Johanna,	*Louisville, Ky.*
Roybar, Nellie Claire,	*Madison.*
Ryan, Margaret Elizabeth,	*Waukesha.*
Sachtjen, Herman William,	*Madison.*
Samuels, Alexander Felix,	*West Salem.*
Schwalm, Arthur Leonard,	*Madison.*
Seek, Blanche Akeley,	*Ashland.*
Senton, Alberta,	*Streator, Ill.*
Siegmeyer, Johannes Wilhelm,	*Madison.*
Sim, Blanche,	*Grandier, N. D.*
Slocum, Percy Wilfrid,	*Slocum, R. I.*
Slyfield, Forrest Foster,	*Sheboygan.*
Smith, Carolyn, Emeline,	*Ottumwa, Ia.*
Smith, Helen Elizabeth,	*Tomahawk.*
Smith, Jessie Clemons,	*Madison.*
Spellman, Lloyd Pyre,	*Kansas City, Mo.*
Sprecher, Alice Adell,	*Madison.*
Staley, Forest Henry,	*Madison.*
Steffen, Lyman Allen,	*Antigo.*
Steiner, Grace Charlotte,	*Milwaukee.*
Steinfeldt, Charles Rudolph,	*West De Pere.*
Steinke, Laura Anna,	*Madison.*
Stickney, Mary Eleanor,	*Madison.*
Stiehm, Ewald Ottowin,	*Johnson Creek.*
Stout, Arlow Burdette,	*Albion.*
Stover, Daniel George,	*Milwaukee.*

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Sutherland, Harry Nicholas,	*Madison.*
Syftestad, Anna Emelie,	*Madison.*
Sykes, Dora Louisa,	*Milton Junction.*
Taylor, Clara Isabell,	*Taylorville, Ill.*
Taylor, Mary Katherine,	*Madison.*
Terry, Edna June,	*Madison.*
Te Selle, Clarence John,	*Sheboygan Falls.*
Thatcher, Sarah Gertrude,	*Escanaba, Mich.*
Thompson, Stith,	*Indianapolis, Ind.*
Tollefson, Arthur Ralph,	*West Salem.*
Tormey, Mary Regina,	*Madison.*
Trainor, Kate,	*Madison.*
Trump, Florence Laura,	*Spring Green.*
Van Auken, Clarice,	*Madison.*
Van Hise, Mary Janet,	*Madison.*
Vilas, Margaret,	*Madison.*
Volkmann, Hildegarde Caroline,	*Watertown.*
Walbridge, Ethel Lavonne,	*Madison.*
Watkins, Mary Elizabeth,	*Edmund.*
Wattawa, Virginia,	*Kewaunee.*
Weber, William Henry,	*Racine.*
Welch, Marian Clarke,	*Mapleton, Ia.*
Weston, Nellie Charlotte,	*Waukesha.*
Wheelock, George R.,	*Peoria, Ill.*
Whittier, James Ray,	*Madison.*
Wilder, George Green,	*Chicago, Ill.*
Wilke, Eda Martha,	*Madison.*
Wilkins, Alma Lee,	*Viroqua.*
Willet, George Henry,	*Spring Green.*
Williams, Jean,	*Milwaukee.*
Williams, Mabel Elizabeth,	*Cobb.*
Witte, Dexter Hathaway,	*Waukesha.*
Witte, Edwin Emil,	*Watertown.*
Wohlenberg, Erma Louise,	*Holstein, Ia.*
Wyman, Ella Mary,	*Viropua.*

Course in Commerce

Baley, Earl Francis,	*Shullsburg.*
Baumbach, Frederic Louis,	*Milwaukee.*
Brown, Frederick George,	*Oshkosh.*
Brumder, Herbert Paul,	*Milwaukee.*

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Conley, John Albert,	*Reedsburg.*
Coorsen, Louis Arthur,	*Milwaukee.*
Coward, Stanley Chandler,	*Madison.*
Davidson, William Ward,	*Chicago, Ill.*
Doud, Giles Budlong,	*La Crosse.*
Dudley, Harold Mann,	*Evanston, Ill.*
Erickson, Elmer Andrew,	*Marinette.*
Fenton, Ida,	*Madison.*
Frank, Arthur August,	*Milwaukee.*
Gielow, Walter Charles,	*Manitowoc.*
Grady, Albert William,	*Port Washington.*
Haase, Oscar Rudolph,	*Milwaukee.*
Hood, Frank Gardiner,	*Madison.*
von Kaltenborn, Walter George,	*Merrill.*
Kerschensteiner, Mark Joseph,	*Jefferson.*
Kleimenhagen, Walter Ernest,	*Kilbourn City.*
Knight, Douglas Scotten,	*Bayfield.*
Laas, Robert McKean,	*Chicago, Ill.*
Lamb, Loyd,	*La Crosse.*
Luse, Rey Vincent,	*Chilton.*
Pattison, Morgan Martin,	*Superior.*
Pelton, Glenn Edgar,	*Madison.*
Pelton, Guy Meredith,	*Madison.*
Peters, Adolph Charles Edward,	*Wonewoc.*
Rector, Walter Whitney,	*Fennimore.*
Rightor, Chester Edward,	*Madison.*
Ross, Thompson,	*Rensselaer, Ind.*
Salter, George Harold,	*Colby.*
Sato, Kinichi,	*Milwaukee.*
Schwandt, Robert Henry,	*Appleton.*
*Shankland, Andrew Daniel,	*Chicago, Ill.*
Shibata, Genkwan,	*Toyama, Japan.*
Siefert, Hugo Herbert,	*Reedsburg.*
Simpson, Verazano Kerdolff,	*Chicago, Ill.*
Sproesser, Jacob Weber,	*Watertown.*
Stoppenbach, Reed Charles,	*Jefferson.*
Syftestad, Ole Selmer,	*Madison.*
Tinker, Frank Bernard,	*Mazomonie.*
Wieboldt, Raymond Carl,	*Delavan.*

*Died December 16, 1907.

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Course for Normal School Graduates

Baker, Sarah Alice,	*Eagle.*
Barnhard, Emma,	*Independence, Mo.*
Bodden, Matilda Clark,	*Oshkosh.*
Bu Dahm, Louis August,	*North Freedom.*
Buechel, Fred Anthony,	*Ellsworth, Minn.*
Bugg, John Wesley,	*Macomb, Ill.*
Clark, John S.,	*Portage.*
Cooney, Marguerite Mary,	*Danville, Ill.*
Cronin, Timothy Theodore,	*Oconomowoc.*
Crumpton, May Alice,	*Superior.*
Fromm, Arthur George,	*Hamburg.*
Glanville, Verna Clara,	*Montfort.*
Green, Walter Edward,	*Eagle.*
Guilford, Charles Carroll,	*Platteville.*
Gunderson, Nicholas,	*Ixonia.*
Hargrave, Mary,	*Wilton.*
Herrick, Alfred James,	*Augusta.*
Huebner, Emmy Senta,	*Milwaukee.*
Karnopp, John Louis,	*Almond.*
Kelly, Albert Matthew,	*McFarland.*
Ketcham, Alice May,	*Plainville.*
Knuppel, Eugenia Amelia,	*Appleton.*
Lange, Edward Gustavus,	*Stevens Point.*
Mangan, Esther Caroline,	*Bay City.*
Martin, Hal Roger,	*Madison.*
Mayo, Edward Leroy,	*Eau Claire.*
McClatchie, Leta Annette,	*Augusta.*
Mercer, Mary Irene,	*Somonauk, Ill.*
Morey, Nellie Dexter,	*Edgerton.*
Mustain, Leland Griffin,	*Macomb, Ill.*
Neevel, Frances Anna,	*Madison.*
Nelson, Anna Elaine,	*Grantsburg.*
Parmley, Hermann Joseph,	*Mineral Point.*
Pflughoeft, Emma Angeline,	*Algoma.*
Rickerman, Jay Edgar,	*Sullivan.*
Rodewald, John Wesley,	*Kilbourn.*
Ryan, Daniel Matthew,	*Ellsworth.*
Schwalbe, Gertrude Helen,	*Milwaukee.*
Shillander, Arthur Alexis,	*Madison.*
Skuldt, Nina Helena,	*Mt. Horeb.*

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Storie, Agnes Groves,	*Lodi.*
St. Peter, Louis Urban,	*Oconto.*
Taylor, John Wills,	*Linden.*
Trautmann, William John,	*Forest Junction.*
Vantine, Lewis Ashley,	*Burlington.*
Wilke, Adelaide Elizabeth,	*Madison.*
Winnie, Alonzo Julius,	*Madison.*
Worthington, Fred C.,	*Milwaukee.*

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SOPHOMORES

Abbott, Eveline Patience,	*Madison.*
Adams, Florence Amelia,	*Mukwonago.*
Andrus, Calla Adelaide,	*Madison.*
Anthony, Angela Josephine,	*Milwaukee.*
Appel, Moses Montifore,	*Huron, S. D.*
Appleby, Hazel,	*Madison.*
Atwood, Marion John,	*Madison.*
Axley, Albert A.,	*Cleveland.*
Banks, Parley Francis,	*Moomaw, Neb.*
Barnes, Beatrice Frances,	*Madison.*
Barnes, Dorothy Mary,	*Madison.*
Barry, Mary Ryan Catharine,	*Jackson, Neb.*
Bartlett, Walter Scott,	*Milwaukee.*
Bean, Ernest F.,	*Zearing, Ia.*
Bechtel, Leslie Andrew,	*Butte, Mont.*
Beidleman, Elisha Briggs,	*South Milwaukee.*
Bentley, Daisy,	*Normal, Ill.*
Bentzen, Frederick Whelpley,	*Warrens.*
Bissell, Marion Orpha,	*Lodi.*
Black, John Donald,	*Fort Atkinson.*
Bockelmann, Bernhardt Jacob,	*Milwaukee.*
Borgman, Elizabeth Vera,	*Kewaunee.*
Boyle, Frank Edward,	*Eau Claire.*
Bradford, Ann Helen,	*Madison.*
Brandel, Harry McPherson,	*Fort Atkinson.*
Brasure, Eva Mae,	*Hartford.*
Breitenstein, Lilian,	*Madison.*
Brewer, John Dwight,	*Fort Atkinson.*
Brown, Seeley Matthew,	*Ligonier, Ind.*
Brunow, Walter Theodore,	*Milwaukee.*

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Buchanan, Victor Sauvain,	*Madison.*
Budd, Ethel Lockwood,	*Madison.*
Bullard, Elsie Rea,	*Milwaukee.*
Butterfield, Frances Amanda,	*Moscow, Idaho.*
Byrne, Catherine Berenice,	*Madison.*
Campbell, George,	*Gurnee, Ill.*
Carey, Marie,	*Sioux City, Ia.*
Carpenter, Thomas King,	*Chicago, Ill.*
Carter, Fanny Walbridge,	*Hinsdale, Ill.*
Cary, Caroline Marie,	*Madison.*
Celleyham, Adeline Hayes,	*Madison.*
Challoner, Agnes,	*Oshkosh.*
Chaplin, Leta Lucile,	*Plymouth.*
Christensen, Hans Gerhard,	*La Crosse.*
Christoffer, Harry John,	*London.*
Clark, Genevieve Prudence,	*Northville, Mich.*
Coon, Winifred Pansy,	*Edgerton.*
Corbett, Elizabeth Frances,	*National Home.*
Crumpton, Doris Hartman,	*Superior.*
Dahl, Edna Louise,	*Madison.*
Dake, Charles Laurence,	*Sparta.*
Davies, Avrina Bernice,	*Dixon, Ill.*
Davis, Elizabeth Mary,	*Madison.*
Davis, Helen Emma,	*Madison.*
Derthick, Wilber Morris, Jr.,	*Madison.*
Dino, John,	*Vandling, Pa.*
Dodge, Helen Josephine,	*Monroe.*
Donahue, Zita Veronica,	*Reedsburg.*
Dorney, John Alexander,	*Stevens Point.*
Duckert, Richard Frederick,	*Cottage Grove.*
Duffy, Francis Ryan,	*Fond du Lac.*
Durbrow, Frances Wilson,	*Madison.*
Eddy, Allen Le Roy,	*Sun Prairie.*
Ellsworth, Clara Amelia,	*Barron.*
Emmett, Shirley Lincoln,	*Racine.*
Epstein, Louise Dorothea Fredericka,	*Portage.*
Eyland, Clara Margaretta,	*Akron, Ia.*
Falge, Ottmar John,	*Manitowoc.*
Feinauer, Bertha Katherine,	*Ashland.*
Fisher, Edith Janet,	*Omaha, Neb.*
Fitch, Helen Marie,	*Sun Prairie.*

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Flanagen, George A.,	*Chicago, Ill.*
Flett, Julia Louise,	*Racine.*
Frey, Noah Joseph,	*Waukesha.*
Frost, Nellie Catherine,	*Almond.*
Fuhrman, Edith,	*Fond du Lac.*
Fuller, Anna Caroline,	*Madison.*
Gasser, Hubert Spencer,	*Platteville.*
Gesell, Bertha May,	*Madison.*
Gesell, Robert Albert,	*Madison.*
Geyer, Denton Loring,	*Madison.*
Gilchrist, Grace,	*Davenport, Ia.*
Glenn, Elma Gertrude,	*Lancaster.*
Gorst, Genevieve English,	*Mendota.*
Graham, Dorothy Mary,	*Livingston, Mont.*
Gratz, Rose Bergeta,	*Madison.*
Graves, Lola May,	*Madison.*
Green, Elsie May,	*Chicago, Ill.*
Griffin, Grace Margaret,	*Madison.*
Gross, Lyda Leah,	*Necedah.*
Hall, William Oscar,	*Richland Center.*
Hanchett, David Scott,	*Chicago, Ill.*
Hanson, Martin,	*Marinette.*
Harkness, Bessie,	*Durand.*
Hartman, Leonie Anna,	*Madison.*
H'Doubler, Margaret Newell,	*Madison.*
Hean, Emma Isabel,	*Madison.*
Heddle, John Ronald,	*Madison.*
Hensey, John Louis,	*Madison.*
Hering, Hugo Henry,	*Rockford, Ill.*
Hewitt, Irving John,	*Madison.*
Hickman, John Samuel,	*Jamestown, N. Y.*
Hildebrand, Hazel Cecilia,	*Rhinelander.*
Hill, Laura Frances,	*Baraboo.*
Hilpertshauser, Lillie Caroline,	*Sheboygan.*
Hofstetter, Grace Elizabeth,	*Lyons, Ia.*
Hollister, Lisle Johnson,	*Evansville.*
Holman, Earle Stafford,	*Deerfield.*
Holthoff, Ray Elizabeth,	*Milwaukee.*
Horan, Emmet, Jr.,	*Eau Claire.*
Hoskin, Alice Albert,	*Montfort.*
Houser, Hazel,	*Mondovi.*

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Howe, Grace Carrier,	*Boscobel.*
Hoyt, Ralph Melvin,	*Madison.*
Hughes, Edna Mae,	*Mason City, Ia.*
Hutchison, Helen,	*Madison.*
Hyde, William George,	*Madison.*
Jonasen, Lillie Concordia,	*San Francisco, Cal.*
Jones, John D., Jr.,	*Racine.*
Jones, Marion Rose Osgood,	*Sheboygan Falls,*
Jones, Myrtle Edith,	*Madison.*
Jones, Victoria Esther,	*Madison.*
Jostad, Barney Manley,	*West Salem.*
Kaestner, Florence Marie,	*Plymouth.*
Kahlhamer, Alphonse Edward,	*Mayville.*
Kasiska, Eva Helen,	*Pocatello, Ida.*
Kasiska, Mabel Josephine,	*Pocatello, Ida.*
Kayser, Carl Theodore,	*Milwaukee.*
Kelly, Christmas,	*Milwaukee.*
Kennedy, Gertrude Claire,	*Highland.*
Kenney, Frances Isabelle,	*Cherokee, Ia.*
Kerr, Samuel, Jr.,	*Oak Park, Ill.*
Kieckhefer, Meta Catherine,	*Milwaukee.*
Kindschi, Alta Ester,	*Prairie du Sac.*
Knight, Euphemia Annie,	*Bayfield.*
Lalk, Edward William,	*Koshkonong.*
Lauerman, Archibald William,	*West Bend.*
Leach, Ada Viola,	*Hartford.*
Le Grand, Alexander John,	*Milwaukee.*
Leicht, George Jacob,	*Menomonee Falls.*
Lentzner, Florence Ida,	*Milwaukee.*
Leykom, John Wallace,	*Antigo.*
Lins, Christina Cathleen,	*Spring Green.*
Lovejoy, Opal Hope,	*West Salem.*
Lowman, Marvin Bliss,	*Madison.*
Luce, Mary Maude,	*Chilton.*
Lueckenbach, Edward Jacob,	*Marshfield.*
Luethge, George Caspar,	*Oshkosh.*
Luhman, George,	*Belvidere, Ill.*
Lukes, Gertrude Louise,	*Sioux City, Ia.*
Lumsden, Reuben,	*Kendall.*
Mackin, Agnes,	*Omaha, Neb.*
Malig, Harvey August,	*Milwaukee.*

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Marsh, Martina,	*Marshfield.*
Martin, Roy,	*Darlington.*
Matson, Selma Victoria,	*Madison.*
McComb, Vila Erne,	*Brillion.*
McCormick, Ethel Catherine,	*Butte, Mont.*
McKee, Mary Rose,	*Madison.*
McMillen, Edythe Florence,	*Fort Atkinson.*
Mead, Hazel Marguerite,	*Madison.*
Meloche, Clifford Cyrille,	*Madison.*
Meuer, William Joseph,	*Madison.*
Mighell, Helen,	*Lake City, Ia.*
Miller, Maude Lovina,	*Madison.*
Morrison, Ralph Newton,	*Rockford, Ill.*
Mowry, Vivian,	*Milwaukee.*
Mueller, George John,	*Middleton.*
Munson, Hope Downs,	*Viroqua.*
Murley, Eva Iola,	*Shullsburg.*
Murphy, Pauline,	*Evanston, Ill.*
Naffz, Carl Francis,	*Madison.*
Needham, Maurice Hubert,	*Hinsdale, Ill.*
Nelson, Nels Theodore,	*Cambridge.*
Neville, Clara Brooks,	*Oshkosh.*
Newcomer, Francis Kosier,	*Pittsburg, Pa.*
Newman, John Robert,	*Madison.*
Olsen, Kenneth Gerhard,	*Stoughton.*
Ottery, Ella May,	*Fond du Lac.*
Padley, Pearl Carolyn,	*Sauk City.*
Paris, Margaret Irma,	*Prairie du Chien.*
Park, Gladys,	*Stevens Point.*
Perkins, Lillian,	*Dodgeville.*
Peterson, Marius Smith,	*Milwaukee.*
Pomeroy, Mabel Frances,	*Oconomowoc.*
Prescott, Kathryn Elizabeth,	*Sheboygan.*
Priest, Gladys Eva,	*Madison.*
Probert, Cynthia Pearl,	*St. Paul de Metis, Can.*
Proehl, Theodora,	*Mendota, Ill.*
Quale, Susanna Josephine,	*Madison.*
Quinn, Lewis James,	*Waterford.*
Ramsey, Orin Palmer,	*Reedsburg.*
Reid, Mary Elizabeth,	*Oconomowoc.*
Reinking, Erna Carolina,	*Madison.*

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Richardson, E. Pearl,	*Rockford, Ill.*
Richardson, Maurice Leonard,	*Turtle Lake.*
Richardson, William Duncan,	*Milwaukee.*
Rickeman, Elizabeth Miranda,	*Helenville.*
Riley, Katherine Elizabeth,	*Darlington.*
Ripley, Lucy,	*Chicago, Ill.*
Roach, Florence,	*Fennimore.*
Roberts, Marion,	*Waupaca.*
Roehling, Herman,	*Milwaukee.*
Roehm, Norma Rosalie,	*Ashland.*
Ruedebusch, Frances,	*Mayville.*
Ruedebusch, Gretchen,	*Mayville.*
Sanders, Mamie Amelia,	*Madison.*
Schneider, Cora Virginia,	*Milwaukee.*
Schnuchel, Francis Albert,	*Kenosha.*
Schoenmann, Mathilde Christine,	*Spring Green.*
Schreier, Konrad Foeste,	*Sheboygan.*
Schuette, Henry August,	*Green Bay.*
Schuetz, Alma Katherine,	*Mendota, Ill.*
Schuler, Margaret Mary,	*Milwaukee.*
Schulze, Bertha Johanna,	*La Crosse.*
Schwartz, Nellie Elizabeth,	*East Troy.*
Scoville, Frederic Charles,	*Racine.*
Seaver, Beatrice Eugenia,	*Lake Mills.*
Shannon, Frank John,	*Oconomowoc.*
Shattuck, Francis Ermina,	*Medford.*
Shenkenberg, Etta Irene,	*Waterford.*
Sherwood, Clara Marie,	*Madison.*
Smith, Beulah Evelyn,	*Ashland.*
Smith, Pinckney Freeman,	*Brownington, Mo.*
Spalding, Stella Louise,	*Madison.*
Speer, Ray Philpott,	*Sanborn, Ia.*
Sperle, Dina Henryetta,	*McFarland.*
Sprague, Henry Albert,	*La Crosse.*
Steere, Metta Elizabeth,	*Sparta.*
Stephens, Elinor,	*Chicago, Ill.*
Steven, John Boardman,	*Glenwood.*
Straight, Hazel Azabah,	*Madison.*
St. Sure, Violet,	*Madison.*
Stuckert, John Fred,	*Milwaukee.*
Sutherland, Sarah Augusta,	*Madison.*

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Tarrell, Arch Leroy,	*Platteville.*
Taylor, Ethel Rose,	*Sioux City, Ia.*
Tearnan, Clyde Hadrian,	*Marshfield.*
Tearnan, Raymond Arthur,	*Marshfield.*
Terry, Clara Jeanette,	*Madison.*
Terry, Jessie Clare,	*Baraboo.*
Thompson, James Stacy,	*Ligonier, Ind.*
Thompson, Lucy Bell,	*Mitchell, S. D.*
Thrasher, Sarah Ellen,	*Kewaunee, Ill.*
Tiefenthaler, Leo Frank,	*Milwaukee.*
Tiffany, Earle Edwin,	*La Crosse.*
Tobenkin, Joseph,	*Madison.*
Tolg, Clarence Charles,	*Waukesha.*
Tredinnick, Clarence Edwin,	*Linden.*
True, Katharine,	*Baraboo.*
Underwood, Alice Browne,	*Glencoe, Ill.*
Van Vleck, Winifred Anna,	*Evansville.*
Wahrer, Frederic Louis,	*Fort Madison, Ia.*
Waterman, Lucile Byrne,	*Superior.*
Weed, Leslie Bryant,	*Milwaukee.*
Wells, Wayland Coleman,	*Omro.*
Wetlaufer, Hazel Christina,	*Oshkosh.*
Wheeler, Edith Lenora,	*New York City, N. Y.*
Wheelock, Ralph Wadsworth,	*Peoria, Ill.*
Williams, Anna Frances,	*Madison.*
Williams, Frank Ernest,	*Madison.*
Winterbotham, Ralph William,	*Madison.*
Wittwer, Herman Louis,	*Monticello.*
Wolf, George Paul,	*Random.*
Woodard, Mary Ruth,	*Clinton Junction.*
Worthington, George Edmund,	*Madison.*
Wright, Inez Gertrude,	*Green Bay.*
Wright, Marie Louise,	*Fort Dodge, Ia.*
Zillmer, Raymond Theodore,	*Milwaukee.*
Zimmerman, Lillian Grace,	*Milwaukee.*

Course in Commerce

Aiken, Claude Eugene,	*Onalaska.*
Amen, Harlan Rosegrant,	*Missouri Valley, Ia.*
Behnish, Charles Edward,	*Milwaukee.*
Bent, George Arthur,	*Marinette.*

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Bickel, Harold Le Roy,	*Racine.*
Bigford, Roger Collins,	*Manawa.*
Brindley, Joshua Lavern,	*Richland Center.*
Bulfin, George Thomas,	*Milwaukee.*
Carncross, Elmer Aeneas,	*Lodi.*
Coleman, James Ricketson,	*Milwaukee.*
Crandall, Benjamin Fletcher,	*Milwaukee.*
Curtis, John Huss,	*Madison.*
Davey, Cyril Earl,	*Dodgeville.*
Dorwin, Fred John,	*Hudson.*
Eberle, George Jacquinn,	*Sheboygan.*
Egan, John Fabian,	*Ashland.*
Erickson, Floyd Tyler,	*Elroy.*
Fisher, Edward James,	*Madison.*
Freeman, Courtney Dodge,	*Madison.*
Fuley, Harry Martin,	*Hayward.*
Gaarden, John H.,	*Spring Valley.*
Gantz, Marvin Everett,	*Menomonie.*
Green, William Henry,	*Ligonier, Ind.*
Gross, Schofield Brewster,	*Riverside, Ill.*
Hadley, John Sebastin,	*Superior.*
Hamilton, Walter Luse,	*Two Rivers.*
Hardy, Almeron James,	*Waukesha.*
Henke, Edward Frank,	*Lowell.*
Jacobs, Herbert Edward,	*Sawyer.*
Jamieson, Hugh Clancy,	*Poynette.*
Jencks, Moses Amos,	*Lodi.*
John, Henry Walter,	*Schleisingerville.*
King, Amos Jefferson,	*Hudson.*
Kleinpell, Karl Lessing,	*Cassville.*
Langmas, Arthur Samuel,	*Sheboygan.*
Lloyd, Sumner Hurst,	*Chicago, Ill.*
Logan, Edwin Harold,	*Madison.*
Mills, George Harold,	*Lodi.*
Nash, Charles Mott,	*Grand Rapids.*
Pieper, Walter Elkhart,	*Milwaukee.*
Pratt, Henry Kollock,	*Plainfield.*
Prinz, Alfred,	*Milwaukee.*
Quirk, Earl William,	*Minneapolis, Minn.*
Raeder, Edgar John,	*Cedarburg.*
Ryan, Eugene John,	*Monroe.*

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Seeberger, Hugh Alexander,	*Newton, Ia.*
Simpson, Jefferson Allan,	*Shullsburg.*
Smith, Walter Wallace,	*Glen Ellyn, Ill.*
Spitler, Woodhull Irwin,	*Rensselaer, Ind.*
Springer, Benjamin Franklin,	*Milwaukee.*
Stafford, Harold Stanley,	*Eau Claire.*
Stevens, Leonard Jackson,	*Tomah.*
Tobin, Joseph Michael,	*Elkhorn.*
Weber, Earl Sydney,	*London.*
Weld, Frederick Joseph,	*Rockford, Ill.*
Whitmore, Irving Wallace,	*Wabasha, Minn.*
Wilce, John Woodworth,	*Milwaukee.*
Winsor, Herbert Munsel,	*Mauston.*
Yankoski, Dell Charles,	*Berlin.*

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FRESHMEN

Abendroth, Harry Gustav Albert,	*Milwaukee.*
Adams, Caroline Genevieve,	*Madison.*
Adams, Florence Emma,	*Peoria, Illl.*
Alaniva, Charles Robert,	*Lead, S. D.*
Allyn, Josephine,	*Madison.*
Anderson, Florence,	*Madison.*
Ayer, Mary Lucile,	*Verona.*
Babcock, Hazel,	*Kasota, Minn.*
Baenen, Hariet Carolyn,	*Green Bay.*
Bahr, Mabel Lorraine,	*Milwaukee.*
Baker, Amos Greene,	*Beaver Dam.*
Baker, Aurel,	*Eagle.*
Baldwin, Ada Lillian,	*Dixon, Ill.*
Bane, Geneva Mae,	*Pontiac, Ill.*
Bane, Juliet Leta,	*Pontiac, Ill.*
Barber, Samuel Lyman,	*Springfield, Ky.*
Barker, Will Lester,	*De Kalb, Ill.*
Barner, Cliff MacFarlin,	*Elkhorn.*
Barry, Leo,	*Oregon.*
Batchelor, Roger Putnam,	*Milwaukee.*
Becker, Emma Wilhelmina,	*Monroe.*
Beers, Shelby Edwin,	*Sun Prairie.*
Bennett, George Lewis,	*Beloit.*
Benson, Mabel Josephine,	*Madison.*

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Bigelow, Grace Lucy,	*Marshall.*
Bissell, Clement William,	*Escanaba, Mich.*
Blee, Gerald Joseph,	*Sandwich, Ill.*
Blee, Gladys E.,	*Sandwich, Ill.*
Boerner, Herman Frederick,	*Cedarburg.*
Boettge, Cornelia Louise,	*Berlin.*
Boll, Fern Ester,	*Rice Lake.*
Bonham, Cecile,	*Ottumwa, Ia.*
Bradley, Otto Franc,	*Portland, Ore.*
Brewer, Seckel Fabian,	*Chicago, Ill.*
Brill, Herman Oswald,	*Columbus.*
Brown, Bernice Stockton,	*Delair, N. J.*
Brown, George Henry,	*Hudson.*
Brown, Irving Henry,	*Madison.*
Brown, Mamie Abigaile,	*Mason City, Ia.*
Brown, Timothy,	*Madison.*
Browne, Neil Allen,	*Cobb.*
Buckley, Glenna Catherine,	*Beloit.*
Burke, Robert Jerome,	*Madison.*
Burnson, Anga Marie,	*Sun Prairie.*
Buth, Otto Edward,	*Hartford.*
Cady, Emile Charles,	*Kilbourn.*
Cape, Jane Bruce,	*Dodgeville.*
Carter, Fred Gay,	*Viola.*
Case, Lucy Ada,	*West Allis.*
Chase, Jewell Sperry,	*Oshkosh.*
Childs, John Lawrence,	*Eau Claire.*
Clapp Lillian Frances,	*Madison.*
Clark, Robert Peter,	*Elroy.*
Clausen, Caroline Louise,	*Clear Lake, Ia.*
Cody, Irene Marsh,	*Sturgeon Bay.*
Coldwell, Valeria Geneva,	*Mazomanie.*
Collentine, Margaret Loretta,	*Argyle.*
Connor, Craig Prentice,	*Auburndale.*
Conover, Mary Stover,	*Hinsdale, Ill.*
Constantine, Hazel Van Scoter,	*Madison.*
Cook, Lloyd Lewis,	*Lake Mills.*
Coon, Frances Catherine,	*Rhinelander.*
Cooper, Abbie Winnifred,	*Madison.*
Copeland Lessie Adella,	*Shullsburg.*
Coston, Laila Amabel,	*Scranton, Pa.*

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Cranbrook, Helen Cruce,	*Fairbault, Minn.*
Crawford, Harold Nowell,	*Milwaukee.*
Crawford, Willard Goldsworthy,	*Mineral Point.*
Currie, Herbert,	*Wauwatosa.*
Custer, Glenn Stanley,	*Madison.*
Dahl, Marion,	*Viroqua.*
Dahle, Agnes Helene,	*Mt. Horeb.*
Dahm, Louise Marie,	*Augusta.*
Danson, Warren Leslie,	*Ashland.*
Davis, Mildred Elizabeth,	*Oshkosh.*
Dawson, Raymond Campbell,	*Rochester, Ind.*
Dean, James Phillip,	*Madison.*
DeBoos, Esther Ethel,	*Madison.*
Debus, Helen Elizabeth,	*Menomonee Falls.*
Dexter, Bessie Hoard,	*Madison.*
Didier, Estelle Magdalene,	*Rhinelander.*
Dobeck, Mamie Julia,	*Stevens Point.*
Doe, Arthur Brittan,	*Milwaukee.*
Dorr, Addison Michael,	*Milwaukee.*
Dunwiddie, Grace Lee,	*Monroe.*
Dyar, Hugh Huntington,	*Kenilworth, Ill.*
Dyke, LeGrande Grandis,	*Prairie du Chien.*
Eberle, Roger Theodore,	*Watertown.*
Ecke, Hobert Dodo,	*Fond du Lac.*
Edge, Merceda,	*New Diggins.*
Eggener, Mathilda Elsie,	*Marinette.*
Eldred, Frank Claude,	*Eureka.*
Ellis, Norman Cameron,	*Austin, Ill.*
Ellis, William Henry,	*Freeport, Ill.*
Elvis, Emma Margaret,	*Medford.*
*End, Arthur Alois,	*Sheboygan.*
Engeseth, Alfred John,	*De Forest.*
Eschenburg, Anita May,	*Chicago, Ill.*
Fairchild, Zora Ethel,	*Carpenterville, Ill.*
Falk, Victor Sofus,	*Stoughton.*
Farrar, Victor John,	*Hamburg, N. Y.*
Farrell, Bess,	*Sioux City, Ia.*
Faville, Florence Mary,	*Lake Mills.*
Ferrar, Kayntah,	*Madison.*
Fess, Leona Marie,	*Madison.*

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Fish, Franklin Stowe,	*Milwaukee.*
Fitzpatrick, Genevieve Catherine,	*Ishpeming, Mich.*
Flanagan, David Joseph,	*Welcome.*
Fletcher, Clyde Rockwell,	*Knapp.*
Flinn, Bernard William,	*Pittsfield, Ill.*
Flint, Alfred Thomas,	*Madison.*
Foley, Mae Ellen,	*Manson, Ia.*
Fordyce, Kathryn Margaret,	*West Allis.*
Frankenburger, Dorothy,	*Madison.*
Freese, Henry Herman,	*Sioux Falls, S. D.*
Freligh, Harry Kinne,	*Elkhorn.*
Frey, Forest Henry,	*Hartford.*
Fritz, Adah Eleanor,	*Monroe.*
Froggatt, Lillian Marie,	*Middleton.*
Fryette, Evangeline,	*Madison.*
Garling, Else,	*Mayville.*
Gath, Josephine Myrtle,	*Madison.*
Gilbert, Katherine Holbrook,	*Burlington, Ia.*
Gillett, Marjorie Burnton,	*Fond du Lac.*
Gooding, Donald Rumsey,	*Wausau.*
Graham, David Benjamin,	*Freeport, Ill.*
Green, James Herbert,	*Milwaukee.*
Gregory, Paul,	*Indianapolis, Ind.*
Gross, John William,	*Milwaukee.*
Gross, Manford Stephen,	*Milwaukee.*
Guilford, Kate Ann,	*Oshkosh.*
Guilliaume, Pearl Irene,	*Hartford.*
Habhegger, Margaret Barbara,	*Watertown.*
Hackendahl, Irma Hermance,	*Milwaukee.*
Haessler, Carl Herman,	*Milwaukee.*
Halladay, Lewise,	*Streator, Ill.*
Halls, Jay Clarence,	*Ellsworth.*
Halverson, Kenneth Bovee,	*Whitewater.*
Hambrecht, Leonora,	*Madison.*
Hambrecht, Lulu Ruth,	*Madison.*
Hamilton, George Kinsley,	*Berlin.*
Hannan, Loretto Frances,	*Milwaukee.*
Harding, Charles Ford, Jr.,	*Chicago, Ill.*
Harker, Medora Emmeline,	*Dodgeville.*
Harnstrom, Albert Sanfrid,	*Chicago, Ill.*
Harper, Hester Lewis Moore,	*Madison.*

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Hartman, Ralph Chapel,	*Davis, Ill.*
Hartwing, Fleurette Sophie,	*Watetrtown.*
Haugen, Norma Caroline,	*Northwood, Ia.*
Head, Margaret Louise,	*Madison.*
Hebberd, Nelle,	*La Crosse.*
Hecht, Frank Abner, Jr.,	*Chicago, Ill.*
Heesaker, Jacob Norbert,	*West De Pere.*
Heidner, Albion Henry,	*West Bend.*
Heilman, Lura Fellows,	*Evansville, Ind.*
Heilman, Roman August,	*Madison.*
Heilberg, Irma Amelie,	*Milwaukee.*
Helms, Frances Marie,	*Hudson.*
Hendrickson, Olive Rosetta,	*Argyle.*
Hennes, Wilma Catherine,	*Houghton, Mich.*
Hennessey, Helen Rockwood,	*Sioux City, Ia.*
Herreid, Cecelia,	*Madison.*
Hessing, Grace Angeline,	*Windsor.*
Hetzel, Harry Clayton,	*Madison.*
Heyroth, Ella,	*Manitowoc.*
Hildebrand, Eva May,	*Rhinelander.*
Hill, Charles Lawrence,	*Indianapolis, Ind.*
Hoebel, Elsie Anna,	*Madison.*
Hoffman, Hazel Lotta,	*Mather.*
Hogan, Dana Jerome,	*Fond du Lac.*
Holcomb, Frederick William,	*Sun Prairie.*
Holcombe, Florence Ethel,	*Madison.*
Holmes, Marion Helen,	*Milwaukee.*
Holum, Lois Irene,	*De Forest.*
Hover, William Tracy,	*Denver, Colo.*
Howe, William Canterbury,	*Boscobel.*
Hubbard, Joseph Bradley,	*Madison.*
Hubbell, Affa,	*Cedar Falls, Ia.*
Hughes, Mae Josephine,	*Milwaukee.*
Hulburd, Hortense,	*Chicago, Ill.*
Huschka, Tracy Frances,	*Sparta.*
Ives, Sadie Brae,	*Hartford.*
Jacobs, Hester Antoinette,	*Oconomowoc.*
Jaedecke, Lillian Augusta,	*Watertown.*
James, Ada Frances,	*Sioux City, Ia.*
Jenkins, Roujet De Lisle,	*Chippewa Falls.*
Johannes, Wilhelmine Henrietta,	*Milwaukee.*

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Johnson, Diantha Katherine,	*Stoughton.*
Johnson, Edna Grace,	*Sioux Falls, S. D.*
Johnson, Justin Leroy,	*Wausau.*
Johnson, Laurie Child,	*Hudson.*
Johnson, Lloyd William,	*Augusta.*
Johnson, Margaret,	*Kokomo, Ind.*
Johnson, William Hamden,	*Hudson.*
Jones, Quincy Journey,	*Freeport, Ill.*
Josten, Harriett Margaret Hazel,	*La Crosse.*
Kaiser, Zelma Groot,	*Duluth, Minn.*
Kauffman, Jacob Lorelle,	*Madison.*
Kayser, Esther,	*Madison.*
Kearney, Thomas Matthew, Jr.,	*Racine.*
Kelly, Paul Frederick,	*Clinton, Ia.*
Kennedy, Lillian Charlotte,	*Waunakee.*
Kiemle, Amelia Katherine,	*Spokane, Wash.*
Kiley, Eugene Francis,	*Hartford.*
Kimball, William Langdon,	*Superior.*
Kitchell, Gertrude,	*Topeka, Kan.*
Kleiner, Ida Louise,	*Eau Claire.*
Kleinheinz, Adelaide Wilhelmina,	*Madison.*
Kleinpell, Lulu Carolyn,	*Elkader, Ia.*
Kleinschmit, Henry William,	*Oshkosh.*
Klug, Benjamin William,	*Schleisengerville.*
Knight, Oliver Drake,	*River Falls.*
Knowlton, Harvey Neil,	*Madison.*
Konrad, Frank Charles William,	*Oshkosh.*
Korn, Bernhard Charles,	*Milwaukee.*
Kuhns, Clarissa Augusta,	*Madison.*
Lamborn, Miriam Worrell,	*Madison.*
Landesco, Jack Amador,	*Milwaukee.*
Langdon, Joseph James,	*Richland Center.*
Lea, Maud Luella,	*Madison.*
Leesley, Mildred Irene,	*Chicago, Ill.*
Lehmann, Frances Esther,	*Woodland.*
Lehmann, Sarah Katherine,	*Woodland.*
Lewis, Caroline Margaret,	*Madison.*
Lins, Hilda Matilda,	*Spring Green.*
Longfield, Sara Regina,	*Madison.*
Lotz, Alice Muir,	*Prairie du Sac.*
MacAdam, Ada Armsby,	*Madison.*

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Makeever, Jessie Gertrude,	*Rensselaer, Ind.*
Manley, Irene Conway,	*Beaver Dam.*
Mann, Karl Mowry,	*Milwaukee.*
Marks, Rachel,	*Sun Prairie.*
Marshall, Florence Luella,	*Belvidere, Ill.*
Martens, Elsie Augusta,	*Davenport, Ia.*
Martin, Emma Louise,	*Boscobel.*
Martin, Marie Matilda,	*Green Bay.*
Martin, Marion Eliza,	*Woodland.*
Martin, Mary Annie,	*Madison.*
Martin, Patrick Henry,	*Fond du Lac.*
Maxon, Harriet,	*Milwaukee.*
McCarthy, Vere Loraine,	*Townsend, Mont.*
McComb, Arlie Mae,	*Stoughton.*
McConville, Marguerite,	*Fargo, N. D.*
McCrillis, Paul Burnham,	*Hampton, Ia.*
McDermaid, Delyle Howard,	*Rockford, Ill.*
McDonald, James John,	*Centuria.*
McKey, Douglas Francis,	*Janesville.*
McKinstry, Irwin Roy,	*Beaver Dam.*
McNair, Vera,	*Houghton, Mich.*
Meiners, John Carl,	*Milwaukee.*
Meloche, Rhea Belle,	*Madison.*
Merk, Fred,	*Milwaukee.*
Merz, Elfrieda,	*Madison.*
Metcalfe, Oceo May,	*Benton.*
Meyers, Erwin Aaron,	*Evansville.*
Mielenz, Nora May,	*Milwaukee.*
Miller, Maude,	*Windsor.*
Miner, Oliver H.,	*Madison.*
Mitchell, Ralph Kenneth,	*Milwaukee.*
Morgan, Lucy Lovisa,	*Durand.*
Morris, Hannah,	*Dodgeville.*
Morris, Harold Hulett,	*Racine.*
Mosel, Ellah Margrette,	*Madison.*
Mowre, Arminda Jacqueline,	*Billings, Mont.*
Mowre, Edna Luella,	*Billings, Mont.*
Murphy, Clarence Francis,	*Elkader, Ia.*
Murray, Mildred Mamie,	*Clinton.*
Mutchler, Vera Virginia,	*Madison.*
Nakagami, Kiichiro,	*Hachiman Mino, Japan.*

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Nelson, Alice Jane,	*Oconomowoc.*
Nelson, Ferne Desire,	*Oconomowoc.*
Nelson, Leonard,	*Madison.*
Nelson, Victor Emanuel,	*Eau Claire.*
Newell, Elizabeth Marguerite,	*Chicago, Ill.*
Ninabuck, William Louis,	*Columbus.*
Noll, Oscar Jacob,	*Milwaukee.*
Noyes, Arthur Herbert,	*Baraboo.*
Nuzum, Frank Richard,	*Janesville.*
Ochsner, Albert Henry,	*Chicago, Ill.*
Ofstie, Edda Valborg,	*Eau Claire.*
Ofstie, Esther Charlotte,	*Eau Claire.*
O'Keefe, John Joseph,	*Portage.*
Olmstead, Alice Belle,	*Pocatello, Idaho.*
O'Melia, Albert Joseph,	*Rhinelander.*
Onsrud, Minnie Christine,	*Stoughton.*
Paine, Effie Clarissa,	*Milwaukee.*
Park, Marjorie Gertrude,	*Madison.*
Parke, Newton Clyde,	*Troy, O.*
Parker, Adah June,	*Davenport, Ia.*
Parr, Thad Cassius,	*Madison.*
Partlow, Beulah Agnes,	*Madison.*
Partridge, Elva Edythe,	*Cross Plains.*
Peacock, Leila Irene,	*Oconomowoc.*
Pelton, Clara M.,	*Baraboo.*
Pelton, John Gardiner,	*Waupaca.*
Penniston, Laura Maida,	*Argyle.*
Perkins, Louise,	*Sioux City, Ia.*
Persch, Adele Marie,	*Chicago, Ill.*
Peterson, Mary Sophie,	*Kenosha.*
Pfund, Anna,	*Madison.*
Pittard, Fay Genevieve,	*Sioux City, Ia.*
Plank, Josephine Adelia,	*Oconomowoc.*
Potts, Jennie Elizabeth,	*Waupaca.*
Proudfit, Elizabeth Ford,	*Madison.*
Purple, Ruby Cleora,	*Galesville.*
Quigley, William Joseph,	*Antigo.*
Recksiek, Hermina Anna,	*Butte, Mont.*
Reed, Theodore Worcester,	*Colorado Springs, Colo.*
Rehfuss, Isidor Louis,	*La Crosse.*
Reichert, Rose,	*Madison.*

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Reilly, Elizabeth Marguerite,	*Watertown.*
Reiser, Robert Mathew,	*Sauk City.*
Richards, Arch Eldredge,	*Geneva, Ill.*
Richmond, Ada Maud,	*La Crosse.*
Ridgway, Gladys Grace,	*Madison.*
Rieder, Rudolf Theodor,	*Milwaukee.*
Rietow, Anna Kurt,	*Sheboygan.*
Riley, Willifred Helen,	*Madison.*
Roberts, John Dare,	*Racine.*
Rogers, Martha Jane,	*Dayton, O.*
Rossberg-Leipnitz, Elizabeth,	*Louisville, Ky.*
Ryan, Tressa Marie,	*Lodi.*
Sage, May Lauretta,	*Madison.*
Sanborn, Roy Bates,	*Milwaukee.*
Sander, Marie,	*West Salem.*
Sasuly, Max,	*Milwaukee.*
Sauer, Verra Lillian,	*Milwaukee.*
Schmidt, Irma Nathalie,	*Wausau.*
Schmirler, Theodora Genevra,	*Boscobel.*
Schoenleber, Gretchen,	*Milwaukee.*
Schram, Helen Margaret,	*Madison.*
Schranck, Henry Charles, Jr.,	*Milwaukee.*
Schreier, John August,	*Milwaukee.*
Schuh, Matilda Emma,	*Monroe.*
Schuler, Josephine,	*Milwaukee.*
Schuster, Edith Emma,	*Lodi.*
Schwenker, Calvin Floyd,	*La Crosse.*
Schweppe, Elsa Nona,	*Medford.*
Scott, William Wright,	*Fargo, N. D.*
Scribner, Carrie Gladys,	*Fond du Lac.*
Sears, Edith Amelia,	Madison.
Seilstad, Lillie Emelie,	*La Crosse.*
Shapiro, Estelle Arlette,	*Medford.*
Sheafor, Jean Thomas,	*Boaz.*
Sherman, William Gilbert,	*Milwaukee.*
Sinnen, Anna Ida,	*Racine.*
Sinnen, Emily Ida,	*Racine.*
Slater, Alma May,	*Escanaba, Mich.*
Smeaton, Luella Belle,	*Waukesha.*
Smith, Ella Mabel,	*Oconto.*
Smith, Gertrude Evleth,	*Milwaukee.*

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Smith, Grace Irene,	*Stoughton.*
Smith, Grace Marie,	*Mitchell, S. D.*
Smith, Mabel Marion,	*Beaver Dam.*
Snell, Florence Wells,	*Madison.*
Spohn, William Henry,	*Janesville.*
Spooner, Walter Deloss,	*Green Bay.*
Steele, Martha Marie,	*Cottage Grove.*
Steen, Anna Corrinne,	*Madison.*
Stevens, Karl Ivan,	*Jefferson.*
Stewart, John,	*Aurora, Ill.*
Stiles, Bennett Phelps,	*Sparta.*
Stone, Millie Coe,	*Reedsburg.*
Strassen, Irma Susie,	*Lyons.*
Summers, Frances Elsie,	*Billings, Mont.*
Swan, Ethyl Frances,	*Madison.*
Swan, Helga Louise,	*Stoughton.*
Swenholt, Edna,	*Madison.*
Taylor, Henry Sterling,	*Sioux City, Ia.*
Thomas, John Dobson,	*Chicago, Ill.*
Thomas, John Lawson Baldwin, Jr.,	*Madison.*
Thompson, Charles Goodwin,	*Blair.*
Thompson, John Bernhard,	*Blair.*
Thompson, Margaret Murray,	*Cleveland, O.*
Thomson, Elizabeth Towles,	*Chicago, Ill.*
Thue, Martin John,	*DeForest.*
Thursby, Helen Gertrude,	*Madison.*
Toebaas, Oscar Theodore,	*Iola.*
Tracy, Olive Catherine,	*Madison.*
Traver, Chalmer Boorman,	*Milwaukee.*
Tucker, Elizabeth,	*Kewaunee, Ill.*
Tuffley, Margaret Louise,	*Boscobel.*
Twining, Phoebe Anne,	*Monroe.*
Tyrrell, Bessie Florila,	*Madison.*
Underwood, Herbert,	*Milwaukee.*
Vaughn, Fay,	*Bangor.*
Veerhusen, Vera Elsbeth,	*Madison.*
Viles, Edith Josephine,	*Chippewa Falls.*
Vyvyan, Grace Ellen,	*Union Grove.*
Walsh, Irene Adelaide,	*Washburn.*
Warden, Charlotte,	*Ottumwa, Ia.*
Warren, Wheeler,	*Milwaukee.*

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Watkins, John Orton,	*Milwaukee.*
Weaver, John Paul,	*Madison.*
Weber, Edna Hertha,	*New Holstein.*
Webster, Russel Otto,	*Aberdeen, S. D.*
Wehmhoff, Gertrude Janet,	*Burlington.*
Whitney, Mary Park,	*Madison.*
Wiechers, Alma Magdalin,	*Racine.*
Wilcox, Howard Van Brunt,	*Horicon.*
Wild, Harry Goetseels,	*Milwaukee.*
Wilde, Frederick Erdman Jesse,	*Milwaukee.*
Wilder Kathryn,	*Austin, Minn.*
Williams, Arthur Jack,	*Waukesha.*
Willis, Winifred Elizabeth,	*Lancaster.*
Wilmanns, Belle,	*Milwaukee.*
Willmore, Cyrus Crane,	*Union Grove.*
Wilson, Irene,	*Rochester, N. Y.*
Winholt, Walter Fritz,	*Chicago, Ill.*
Winslow, Emily Bradley,	*Madison.*
Wippermann, Elfrieda Hertha,	*Shawano.*
Witwen, Edna Pearl,	*Baraboo.*
Wittwer, Lora Caroline,	*Madison.*
Woerner, Lisette Katherine,	*Louisville, Ky.*
Worthington, Cordelia Eleanor,	*Madison.*
Wright, Rowe,	*Milwaukee.*
Wyland, Huldah Matilda,	*La Grange, Ind.*
Yabe, Masao,	*Chibaken, Japan.*
Yorgey, Blanche Vivian,	*Horicon.*
Yorgey, Roxie Marie,	*Horicon.*
Zellmann, Anna Barbara,	*Milwaukee.*
Zillmer, Aimee Mary,	*Milwaukee.*
Zinn, Berthold Franklyn,	*Milwaukee.*

Course in Commerce

Arpin, Harold Augustus,	*Grand Rapids.*
Ashmun, Clifford Samuel,	*Waupaca.*
Batz, Rupert Joseph,	*Sun Prairie.*
Bellack, Karl Ormsby,	*Milwaukee.*
Bonner, Charles Alexander,	*Chicago, Ill.*
Bunker, Eugene Francis,	*Woodstock, Ill.*
Burns, Edward Anthony,	*La Crosse.*
Burton, Franklin Dorr,	*Madison.*

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Clark, Comillo Adams,	*Menomonie.*
Conron, William Thomas,	*Danville, Ill.*
Coxe, Gerald James,	*Whitewater.*
De Long, Frank Brooks,	*Elroy.*
Dohmen, Erwin Joseph,	*Milwaukee.*
Douglas, Harold,	*Lake Geneva.*
Draves, Henry Charles,	*Milwaukee.*
Drinkwater, Charles Mark,	*Kokomo, Ind.*
Drury, Eugene Leon,	*Union Grove.*
Dwight, Austin Walke,	*Milwaukee.*
Eagan, Roderick,	*Darien.*
Eidmann, Herbert Walter,	*Chicago, Ill.*
Ekern, Paul Chester,	*Superior.*
Eklund, Emil Julius,	*Hynes, Cal.*
Fraser, William,	*Honey Creek.*
Goodrich, James Clyde,	*Durand.*
Gordon, John Simpson,	*Waupaca.*
Green, Robert Dickinson,	*Chicago, Ill.*
Guidinger, Lloyd Matthew,	*Northwood, Ia.*
Hanzlik, Herman Newman,	*Wonewoc.*
Harns, William Wightman,	*West Bend.*
Harris, Ellsworth NeCollins,	*Mineral Point.*
Hartley, Ralph Roswell,	*Oshkosh.*
Hauck, Fred,	*Hamburg.*
Hebenstreit, James Raymond,	*Shullsburg.*
Heinemann, Sol,	*Wausau.*
Howard, Delton Clement,	*Brodhead.*
Johns, Charles Lester,	*Dodgeville.*
Johnson, Carl,	*Hayward.*
Johnson, Carl DeVere,	*Winona, Minn.*
Joys, Carl, Jr.,	*Milwaukee.*
Kleinpell, Arthur Schoppenhouer,	*Cassville.*
Klindt, John Arthur, Jr.,	*Cassville.*
Krampeter, Frank Herman Albert,	*Gilmanton.*
Larson, Sigvald Lawrence,	*Cumberland.*
Lilly, Lewis,	*Elkader, Ia.*
McGrath, Charles Blair,	*Eau Claire.*
McMillen, Clifford Le Roy,	*Ft. Atkinson.*
McWilliams, Roy Morton,	*Pueblo, Colo.*
Mercer, Joe David,	*Chicago, Ill.*
Minton, Albert William,	*Menasha.*

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Morgan, Thomas Henry,	*Madison.*
Nash, Garrett Barry,	*Milwaukee.*
Nicholas, Mark Elias,	*Wonewoc.*
O'Malley, Robert Connor,	*Waunakee.*
Overholser, Leroy H.,	*Sterling, Ill.*
Pheatt, Burton Maxwell,	*Milwaukee.*
Priestley, Glenn Wood,	*Milwaukee.*
Reed, Roland,	*Ida Grove, Ia.*
Rees, Reginald Leigh,	*Hinckley, Ill.*
Reif, Carl William,	*Madison.*
Rex, John Louis,	*Merrill.*
Reyer, Will Cleveland,	*Colby.*
Rohn, Chester Ferdinand,	*Milwaukee.*
Rossbach, Clement Astor,	*Milwaukee.*
Scantleton, John Martin,	*Cataract.*
Schacht, Erwin Arthur,	*Racine.*
Schuetter, Robert Louis,	*Appleton.*
Schwager, Leon Alexander,	*Ashland.*
Schwarting, Alvin Walter,	*Milwaukee.*
Sexton, Charles Richard,	*Madison.*
Slater, Percy Bosanquet,	*Milwaukee.*
Smith, Earl LeRoy,	*Peoria, Ill.*
Stephenson, Clinton Ray,	*Sturgeon Bay.*
Stiles, Fred Bailey,	*Cherokee, Ia.*
Stolzenburg, Louis Herman,	*Edwards.*
Thatcher, Oliver Victor,	*Escanaba, Mich.*
Theobald, Jesse Edward,	*Madison.*
Thuerar, Albert Henry,	*Baraboo.*
Timbers, Michael Francis,	*Mauston.*
Welch, Arthur Emery,	*Milwaukee.*
Wiley, Donald Francis,	*Peoria, Ill.*
Wilmanns, Arthur John,	*Milwaukee.*
Wilson, Edgar Carpenter,	*Wausau.*
Wood, Beder, Jr.,	*Moline, Ill.*
Zinke, William H.,	*Fond du Lac.*

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ADULT SPECIAL STUDENTS

Akatani, Onryo,	*Haroshima, Japan.*
Allen, Harriet Luella,	*Madison.*
Allen, Herman Joe,	*Belleville.*

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Anderson, Carl Tesch,	*Milwaukee.*
Ariake, Bunkichi,	*Akita, Japan.*
Baird, Chester Dillon,	*Milwaukee.*
Barr, Laurence Marshall,	*Chicago, Ill.*
Blend, Belle,	*Milwaukee.*
Bosson, Amy Goodrich,	*Calumet, Mich.*
Bradford, Roy Charles,	*Madison.*
Brandt, Fredolia Eugenia,	*Watertown.*
Brigham, Stephen Orson,	*Madison.*
Cashel, John Lyons,	*Grafton, N. D.*
Crane, Mary Josephine,	*Chicago, Ill.*
Crawford, Fannie,	*Madison.*
Crawford, Russell Nelson,	*Chicago, Ill.*
Daubner, Herbert Andrew,	*Madison.*
Derthick, Myrtle Mae,	*Madison.*
Fernald, Lewis Larhley,	*Baker City, Ore.*
Fieldhouse, Myrtle Carrie,	*Dodgeville.*
Fowler, Robert Gordon,	*Amherst.*
Franke, Meta Elise,	*Milwaukee.*
Goodenough, Jessie Eunice,	*Tomah.*
Gottschalk, Carl August,	*Bozeman, Mont.*
Gottschalk, Edwin Arthur,	*Scandinavia.*
Grady, Julia Ricketts,	*Madison.*
Gysbers, John Henry,	*Madison.*
Hoyt, Edith Evans,	*Madison.*
Ingersoll, Charles Donald,	*Canton, Ill.*
Jackman, Johnston Charles,	*Madison.*
Jessup, John Mercator,	*Madison.*
Jolivette, Bert Alexander,	*La Crosse.*
Kennedy, Grover Fil,	*Waunakee.*
Ketelle, Hubert,	*Madison.*
Krogstad, Adolph Johnson,	*Madison.*
Kujawa, Peter James,	*Fennimore.*
Lawrence, Ralph Emory,	*Elgin. Ill.*
Lewis, Thomas Edwin,	*Madison.*
l'Hommedieu, Stella Marie,	*Cincinnati, O.*
Lippert, George Wolfe,	*Jefferson.*
Little, Chester Keneth,	*Plainfield, Ind.*
Marthinson, Norman Oscar,	*Austin, Minn.*
Martin, Harold Arthur,	*Centerville.*
McGeever, James Daniel,	*Cuba.*

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McKay, Paul Wesley, *Madison.*
Messer, Angie, *Madison.*
Morris, George Charles, *Madison.*
Mueller, Hermann Carl Paul, *Milwaukee.*
Olsen, Anna Margaret, *Madison.*
Olson, Mabel Rosetta, *Wyanet, Ill.*
Peters, Lloyd Gleason, *San Diego, Cal.*
Pfund, Helen, *Madison.*
Powell, Daniel Ward, *Marquette, Mich.*
Pynch, Jenner Alfred, *Madison.*
Ragan, Kathryn Nora, *Napoleon, O.*
Richardson, Gertrude, *St. Paul, Minn.*
Robertson, Arthur Hampton, *Madison.*
Rockwell, Ethel Theodora, *Viola.*
Roump, Alma Bertha, *Madison.*
Saposs, David Joseph, *Milwaukee.*
Schuppert, Kathryn Matilda, *Madison.*
Scott, Laura, *Madison.*
Seager, Carl Edwin, *Rochester, N. Y.*
Shipman, Truman Gaylord, *Sunbury, Pa.*
Smith, Harry Forsythe, *Jacksonport.*
Smith, Mary Chamberlain, *Madison.*
Spande, Thomas Jacob, *Deerfield.*
Steinmetz, Walter Christian, *Milwaukee.*
Thompson, William John, *Milwaukee.*
Tsai, Chu-Tung, *Shanghai, China.*
Woodruff, Mary Louise, *Baraboo.*
Youngs, Caroline Julia, *Madison.*

ADULT SPECIAL STUDENTS, COURSE IN COMMERCE

Rudolf, William Thomas, *Juneau.*
Schoenwetter, Theodore Henry, *Juneau.*
Smith, Henry Evans, *Baltimore, Md.*
Sweasy, Jesse Raymond, *Fairwater.*
Tichenor, Myron Hawley, *Oconomowoc.*
Trowbridge, Harley George, *Hayward.*

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COLLEGE OF MEDICINE

FIRST YEAR

Beye, Howard Lombard, *Oak Park, Ill.*
Bissel, Wayne William, *Lodi.*

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Dearborn, Walter Fenno,	*Madison.*
De Sautelle, William Thomas,	*La Crosse.*
Diederich, Victor Peter,	*Madison.*
Fisher, Roland Frederick,	*Baraboo.*
Godfrey, Rush Clayton,	*Lancaster.*
Grey, Ernest George,	*Madison.*
Gunther, Otto,	*Sheboygan.*
Gunther, Theodore John,	*Sheboygan.*
Ives, George,	*Fort Atkinson..*
Keho, Joseph,	*Tacomah, Wash.*
Kissling, Arthur Charles,	*Milwaukee.*
Larson, Alfred,	*Wausau.*
Leaper, Warren Eugene,	*Green Bay.*
Lehmann, Van V.,	*Neosho.*
Manning, Florence Edna,	*Belvidere, Ill.*
Myers, Harold Bunce,	*Janesville.*
Nelson, Oliver Otto,	*Madison.*
Nichols, Roy Theodore,	*River Falls.*
Sexton, Walter Gresham,	*Marshfield.*
Simons, Dora May,	*Shawano.*
Slyfield, Forrest Foster,	*Sheboygan.*
Wahl, Harry Roswell,	*Stratford.*
Witte, Dexter Hathaway,	*Waukesha.*

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Course in Pharmacy

Four Year Course

Jährling, Valerio Cala,	*Manila, P. I.,*	Senior.
Kendell, William Henry,	*Waukesha,*	Junior.
Schultz, Raymond Louis,	*Milwaukee,*	Senior.
Simons, Jasper Edgar,	*Lodi,*	Sophomore.
Smith, Hermione,	*River Falls,*	Senior.
Swenholt, John,	*Madison,*	Junior.
Titus, Martin Edwin,	*Sparta,*	Junior.
Wakeman, Nellie Antoinette,	*Columbus,*	Senior.

Two Year Course

Anderson, Myron Albert,	*Alma,*	Second Year.
Bach, Edward George,	*Madison,*	First Year.
*Billings, Henry Mortimer,	*Cobb,*	Second Year.

*Taking three-year course.

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Byron, Lynn Wider,	*Madison*,	First Year.
*Duscheck, Edward,	*Sun Prairie*,	Second Year.
*Glennon, Edward Charles,	*Stevens Point*,	Third Year.
Grimmer, Walter Gustav,	*De Pere*,	First Year.
Hannon, Frank William,	*Green Bay*,	First Year.
Ihk, Carl Albert,	*Ashland*,	Second Year.
Jones, Jay Idris,	*Randolph*,	Second Year.
*Link, Alfred August,	*Madison*,	Second Year.
Luckey, Claude Campbell,	*Madison*,	Second Year.
Lueders, Eugene August,	*Columbus*,	Second Year.
Lynn, Robert John,	*Monticello*,	First Year.
McDaniel, John Wesley,	*Boscobel*,	First Year.
Peterson, Lawrence Peter,	*Viroqua*,	First Year.
Russell, G. Archibald,	*Tomahawk*,	Second Year.
Turner, James Isaac,	*Mondovi*,	First Year.
*Wagener, Walter Irving,	*Sturgeon Bay*,	Second Year.
*Whitman, Harlow Sautelle,	*Hurley*,	Second Year.
Whitman, Mattie Isabelle,	*Baraboo*,	Second Year.
Wohlwend, Albert,	*New Glarus*,	First Year.
Woolhiser, Theo Mary,	*South Wayne*,	First Year.
Worthington, Theodore Thomas,	*Madison*,	Second Year.

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COLLEGE OF ENGINEERING

SENIORS

Abbott, Ellis Pitt,	*Madison*,	C. E.
Anderson, Victor Roy,	*Janesville*,	M. E.
Beasley, William Howard,	*Texarkana, Ark.*,	E. E.
Bennett, Benjamin Franklin,	*Baltimore, Md.*,	G. E.
Birkett, Miles Wren,	*Madison*,	E. E.
Blankenburg, Herbert Louis,	*Milwaukee*,	G. E
Blatz, Albert Valentine,	*Milwaukee*,	E. E.
Brandel, Clarence Oliver,	*Milwaukee*,	E. E.
Brown, Edwin Stanton,	*Indianapolis, Ind.*,	C. E.
Brown, Paul Vincent,	*Racine*,	C. E.
Brownlee, Frank Richard,	*Milwaukee*,	M. E.
Buchecker, Albert Israel,	*Madison*,	E. E.
Buetow, Walter Charles,	*Milwaukee*,	C. E.
Byron, Charles Loomis,	*Milwaukee*,	E. E.
Cerna, Santiago,	*Nadadores, Coah, Mex.*,	C. E.

*Taking three-year course.

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Cheney, Charles Albert, Jr.,	*Madison*,	G. E.
Collins, Arthur Lee,	*Madison*,	E. E.
Comer, Ragner Otolis,	*St. Croix Falls*,	M. E.
Cooper, Marion Deane,	*Black River Falls*,	E. E.
Copp, Wayland John.	*Madison*,	M. E.
Cortelyou, George Stillwell,	*Brodhead*,	C. E.
Cunningham, John Wilbur,	*Madison*,	C. E.
Daenitz, Ottomar Paul Theodore,	*Madison*,	G. E.
Daniels, George Christian,	*Freeport, Ill.*,	M. E.
Diestler, Gilbert Albert,	*Hortonville*,	C. E.
Disque, Robert Conrad,	*Madison*,	E. E.
Drought, Orville Hay,	*Waukesha*,	C. E.
Faber, Merle Everitt,	*Mendota, Ill.*,	M. E.
Field, Guy Alden,	*Sharon*,	M. E.
Fox, Edwin Gordon,	*Madison*,	E. E.
Frost, Frank Summer,	*Evansville*,	M. E.
Gage, Samuel Wallace,	*Eagle Bridge, N. Y.*,	C. E.
Gibson, Walter Gordon,	*Fond du Lac*,	G. E.
Gillespie, James Edward,	*Stockbridge*,	C. E.
Graff, Bjarne Halfdan,	*Madison*,	C. E.
Greve, Frederick William, Jr.,	*Brooklyn, N. Y.*,	M. E.
Grodske, Walter John,	*Milwaukee*,	C. E.
Gross, Edward Lascar,	*Milwaukee*,	Ch. E.
Gross, George Louis,	*Stevens Point*,	C. E.
Hague, Frank Louis,	*Lake Mills*,	C. E.
Hain, Elmer Lamont,	*Edgerton*,	C. E.
Halbert, Charles Arthur,	*Augusta*,	C. E.
Halliday, Malcolm John,	*Riverside, Ill.*,	M. E.
Hawley, Edward Joseph,	*Green Bay*,	G. E.
Hayes, Michael Thomas,	*Janesville*,	C. E.
Heebink, Garret Egbert,	*Cedar Grove*,	C. E.
Hejda, Joseph William,	*Manitowoc*,	C. E.
Hills, Earl Vinton,	*Madison*,	E. E.
Hirsch, John George,	*Milwaukee*,	C. E.
Hoffmann, Arthur William,	*Sheboygan*,	Ch. E.
Holmes, Horace Mars,	*Galesburg, Ill.*,	C. E.
Hosler, Harry,	*Reedsburg*,	E. E.
Howson, Louis Richard,	*Madison*,	C. E.
Huntley, Lee Harvey,	*Neillsville*,	C. E.
Ives, Frederick Walter,	*Rubicon*,	M. E.
Jerrard, Leigh Patterson,	*Superior*,	C. E.

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Johnson, Chester Nels,	*Delevan*,	G. E.
Kachel, William Frederick,	*Baraboo*,	C. E.
Kaulfuss, Julius Ernest,	*La Crosse*,	C. E.
Kehr, Carl Meriman,	*Sterling, Ill.*,	G. E.
Ketchum, Harold Edwin,	*Madison*,	G. E.
Ketchum, Wesley Merritt,	*Milwaukee*,	E. E.
Kifer, Edwin Henry,	*Madison*,	E. E.
Kingsbury, Henry George,	*Mineral Point*,	E. E.
Knuth, Tony Byron,	*Owen*,	C. E.
Kruesi, Frank Eugene,	*Schenectady, N. Y.*,	E. E.
Krum, Henry Alexander,	*Madison*,	C. E.
Kryzinski, Antony Jacob,	*Milwaukee*,	E. E.
Kuelling, Herbert John,	*Shullsburg*,	C. E.
Kuentz, Oscar Otto,	*Milwaukee*,	M. E.
Kuhl, Herman Charles,	*Neillsville*,	C. E.
Lautz, George Henry,	*La Crosse*,	C. E.
Legreid, Herman Nicholas,	*Stoughton*,	Ch. E.
Lindemann, Walter Carl,	*Milwaukee*,	M. E.
Liver, Harold Allan,	*Wonewoc*,	C. E.
Lloyd, Emrys J.,	*Cambria*,	E. E.
Lokke, Julius Henry,	*Baldwin*,	E. E.
Lunde, Sigurd Gilbertson,	*Wausau*,	C. E.
Lutze, Henry Fred,	*Sheboygan*,	E. E.
Mathews, William Wyman,	*De Pere*,	C. E.
McComb, Ross Kenneth,	*Brillion*,	G. E.
McLean, Harry Clayton,	*Madison*,	M. E.
Melcher, Austin Gove,	*Hinsdale, Ill.*,	M. E.
Meyer, Henry William, Jr.,	*Appleton*,	E. E.
Miller, William Boyd,	*Pittsburgh, Pa.*,	C. E.
Moriarty, Eugene Winfield,	*Elroy*,	E. E.
Nelson, Oscar Hermann,	*Stoughton*,	C. E.
Oakes, Francis Henry,	*Madison*,	G. E.
Paesler, Fred Edward,	*Madison*,	E. E.
Palmer, Edward Albert,	*Janesville*,	E. E.
Parker, Howard Ashley,	*Evansville*,	C. E.
Perwien, Richard,	*Madison*,	C. E.
Pfannstiehl, Jean Jacques,	*Baraboo*,	G. E.
Pitz, Arthur Herman,	*Manitowoc*,	C. E.
Platten, William Joseph,	*Green Bay*,	E. E.
Porter, Lloyd Wardall,	*Evansville*,	C. E.
Reed, James Olin,	*Glendive, Mont.*,	C. E.

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Reineking, Victor Herman,	*Milwaukee,*	C. E.
Reinhard, Gustav Adolph,	*Milwaukee,*	E. E.
Rice, Ernest Fredric,	*Milwaukee,*	E. E.
Rogers, Sumner Barnes,	*Milwaukee,*	G. E.
Rosholt, John Nicholas,	*Oconomowoc,*	E. E.
Ryan, William Henry,	*Janesville,*	C. E.
Schleifer, August Charles,	*Cedarburg,*	E. E.
Schmidt, Ferdinand Carl,	*Madison,*	E. E.
Schuler, Frank Joseph,	*Milwaukee,*	M. E.
Schwede, Frederick August,	*Sawyer,*	C. E.
Scribner, Charles Archibald,	*Fond du Lac,*	E. E.
Semrad, Charles Albert,	*Madison,*	E. E.
Shapiro, Joseph,	*Antigo,*	Ch. E.
Shepherd, Claude Harold,	*Texarkana, Ark.,*	E. E.
Sherman, John Rockwood,	*Brodhead,*	C. E.
Shorey, Edwin Ray,	*Oshkosh,*	C. E.
Simonds, Herbert Rumsey,	*Chicago, Ill.,*	M. E.
Simpson, James Frederic,	*Chicago, Ill.,*	G. E.
Smith, Andrew Adelbert,	*Waterford,*	C. E.
Spencer, Fred Lewis,	*Waupaca,*	E. E.
Steenrod, Terrill Finney,	*Madison,*	E. E.
Steinfort, Carl Edward,	*Ephraim,*	E. E.
Suhm, Erwin Roman,	*Milwaukee,*	Ch. E.
Thickens, John Herman,	*Appleton,*	Ch. E.
Thiele, Otto Victor,	*Milwaukee,*	M. E.
Tibbitts, Fayette Amos,	*Sheboygan,*	E. E.
Tierney, John Thomas,	*Woodlawn,*	M. E.
Van Derzee, Gould Whitney,	*Milwaukee,*	E. E.
Volk, Fred Eugene	*Busch, Okla.,*	E. E.
Wahl, Louis Edward,	*Antigo,*	E. E.
Waite, Walter Edwin,	*Brooklyn,*	E. E.
Wallber, Hilbert Charles,	*Milwaukee,*	C. E.
Walser, Edward William,	*Austin, Ill.,*	M. E.
Weber, Cornelius George,	*Theresa,*	E. E.
Wehausen, George Washington,	*Madison,*	E. E.
Whitney, Alden Bradford,	*Madison,*	C. E.
Wiggins, Edward Ruger,	*Orfordville,*	M. E.
Williams, Sidney James,	*Milwaukee,*	G. E.
Wippermann, William,	*Chilton,*	M. E.
Witt, Louis,	*New Holstein,*	Ch. E.

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Wolff, Julius Fred,	*Cumberland,*	G. E.
Zeisler, George H.,	*La Crosse,*	C. E.
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JUNIORS

Acret, George Edward,	*Madison,*	G. E.
Arnold, Louis George,	*Eau Claire,*	C. E.
Austin, Eric Walton,	*Spanish Town, Jamaica,*	G. E.
Balch, John Willigrod,	*Marshalltown, Ia.,*	C. E.
Ball, Edwin Marcotte,	*Madison,*	G. E.
Balsley, Henry Edwin,	*Madison,*	C. E.
Bandli, Eduard Mitchell,	*Rice Lake,*	C. E.
Bassett, William Beacher,	*Beaver Dam,*	E. E.
Bates, Floyd Elton,	*Mason City, Ia.,*	C. E.
Bechtelheimer, Albert Elvin,	*Green Bay,*	G. E.
Becker, John Walter,	*Chicago, Ill.,*	C. E.
Beitel, Roy Milton,	*Madison,*	E. E.
Bell, George William,	*Tomah,*	E. E.
Bertles, William Mathew,	*Green Bay,*	G. E.
Blake, George Barnes,	*Huron, S. D.,*	E. E.
Boardman, Clark Clinton,	*New Richmond,*	M. E.
Boyd, Stanley Mayo,	*Madison,*	G. E.
Brackenwagen, Earl Charles,	*Madison,*	C. E.
Bryan, Howard,	*Madison,*	C. E.
Burritt, Charles Glenn,	*Mauston,*	C. E.
Buser, John Thomas,	*Potosi,*	C. E.
Bustamante, Luis,	*Mexico City, Mex.,*	E. E.
Butler, Milton Carrol,	*Virginia, Minn.,*	C. E.
Cenfield, Frank Henry,	*Potosi,*	C. E.
Chen, Juedan Tung-Shou,	*Shanghai, China,*	G. E.
Chuchian, Sahak Melkon,	*Boston, Mass.,*	E. E.
Coleman, Alfred Freude,	*Chippewa Falls,*	M. E.
Colladay, Edgar Bergman,	*Madison,*	E. E.
Conlin, William Henry,	*Madison,*	C. E.
Conway, Jesse Frank,	*Antigo,*	E. E.
Cook, James Knight,	*Madison,*	M. E.
Cutler, Joseph Albert,	*Dodgeville,*	C. E.
Cutler, Manuel,	*Dodgeville,*	C. E.
Dahl, Chester Theodore,	*Madison,*	C. E.
Davis, Sidney Hugh,	*Des Moines, Ia.,*	G. E.
Dean, Harry Jennings,	*Racine,*	E. E.
DeBoos, Frank Alfred,	*Madison,*	C. E.

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Decker, David Claire,	*Oneida*,	C. E.
Dodds, John Hutchins,	*Milwaukee*,	G. E.
Drew, Harold Winthrop,	*Milwaukee*,	G. E.
Dutton, Byron Kaye,	*Waupaca*,	C. E.
Edwards, Bruce Vincent,	*Bayonne, N. J.*,	M. E.
Edwards, Vernon Quam,	*Ashland*,	C. E.
Ely, Elmer Andreas,	*Mauston*,	M. E.
Engsberg, Emil Ernest,	*Lake Mills*,	E. E.
Farnham, Frederick Foster,	*Beloit*,	Ch. E.
Field, Forrest Whipple,	*Sharon*,	E. E.
Fisher, Raymond Walter,	*Phillips*,	G. E.
Fisher, Samuel Morton,	*Delavan*,	C. E.
Fragrante, Vicente,	*Vigan, Ilocos Sur, P. I.*,	C. E.
Froelich, Frank Richard,	*Glenbeulah*,	M. E.
Fuller, Clifford,	*Madison*,	M. E.
Garner, Harrison Levi,	*Lancaster*,	C. E.
Garnock, Alexander Richard,	*Tomah*,	C. E.
Geyer, Arthur Norman,	*Roswell, N. M.*,	E. E.
Glaettli, John Jr.,	*Milwaukee*,	C. E.
Gomez, Pastor,	*Calumpit, Bulacan, P. I.*,	C. E.
Griswold, Ernest Carl,	*Thomson, Ill.*,	E. E.
Hackett, Charles William,	*Madison*,	E. E.
Haevers, William,	*Luxemburg*,	E. E.
Hale, Fred Earl,	*Madison*,	C. E.
Harper, Harry M.,	*Madison*,	E. E.
Harvey, Harold Vincent,	*Racine*,	M. E.
Haskell, Sidney Cleveland,	*Coburg, Ont., Can.*,	G. E.
Hidalgo, Marceliano,	*Binalonan, Pangasinan, P. I.*,	C. E.
Hodges, Paul,	*Monroe*,	E. E.
Holmes, William Raymond	*Baldwin*,	C. E.
Hope, Samuel Newton,	*Fond du Lac*,	M. E.
Hunner, Hale Haven,	*Eau Claire*,	G. E.
Huntington, Edward Estabrook,	*Platteville*,	E. E.
Jelinek, Bohumil Joseph,	*Milwaukee*,	C. E.
Johns, Edward Francis,	*Madison*,	M. E.
Johnson, Clarence Nathan,	*Trempealeau*,	E. E.
Johnson, Francis Ellis,	*Madison*,	E. E.
Johnson, Glen Le Roy,	*Rockford, Ill.*,	E. E.
Johnson, Harold Holcomb,	*Brodhead*,	C. E.
Johnson, Phillip Hafford,	*Appleton*,	E. E.
Jones, Charles Alvin,	*Burlington*,	E. E.

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Kanzler, Oscar Charles,	*Chicago, Ill.*,	E. E.
Kartak, Franz August,	*Oconomowoc*,	E. E.
Kennedy, Frank M.,	*Madison*,	C. E.
Kenzler, Frank William,	*Cambridge*,	E. E.
Kerr, Henry Halleck,	*Eau Claire*,	E. E.
Kieckhefer, Alfred John,	*Milwaukee*,	M. E.
Kildsig, Gustav Espersen,	*Racine*,	M. E.
Kline, Jacob John,	*Kaukauna*,	E. E.
Koch, Fred Herbert,	*Milwaukee*,	C. E.
Kortebein, Hugo William,	*Milwaukee*,	E. E.
Krahn, William Otto Herman,	*Milwaukee*,	C. E.
Kruell, George John,	*Madison*,	C. E.
Kutschera, William Jacob,	*Milwaukee*,	M. E.
Kypke, Clark Henry,	*Lake Mills*,	Ch. E.
Lachmund, Herman,	*Madison*,	M. E.
Larson, Alfred Victor,	*River Falls*,	M. E.
Larson, Louis Martinus,	*Edgerton*,	C. E.
Lewis, Robert Dudley,	*St. Paul, Minn.*,	M. E.
Liese, Fred Richard,	*Berlin*,	C. E.
Lowe, Charles Wesley,	*Petersburg*,	E. E.
Luedke, Arthur Louis,	*Milwaukee*,	C. E.
Mann, Charles August,	*Milwaukee*,	Ch. E.
Manor, Eli Ross,	*Genoa Junction*,	E. E.
Mathews, Lee Grange,	*Brandon*,	E. E.
McMullen, Cornelius,	*Dodgeville*,	E. E.
McNaughton, George Cameron,	*Wausau*,	Ch. E.
McWethy, Harold Elbert,	*Bloomer*,	E. E.
Merkin, Abraham E.,	*New York City*,	C. E.
Merrill, Pomeroy Cooper,	*Chicago, Ill.*,	G. E.
Miller, Charles John,	*La Crosse*,	G. E.
Milliren, Barton Le Roy, Jr.,	*Pepin*,	M. E.
Milstein, William Charles,	*Grand Rapids*,	C. E.
Minich, Walter George,	*De Pere*,	E. E.
Mitchell, Amory Raymond,	*Chicago, Ill.*,	C. E.
Moeller Roland,	*Milwaukee*,	M. E.
Moore, Charles Gilbert,	*Eau Claire*,	C. E.
Morgan, Alexander William	*Madison*,	E. E.
Moss, Lester Maxwell,	*Sparta*,	E. E.
Mowatt, William Frank,	*Deland, Minn.*,	C. E.
Muckleston, Ralph Waldo,	*Waukesha*,	G. E.
Muehl, William Rex,	*Seymour*,	E. E.

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Murray, Hugh Earl,	*Superior*,	M. E.
Natwick, Franklin James,	*Grand Rapids*,	E. E.
Newton, Frank Arthur,	*Sparta*,	G. E.
Nicholson, Percival Harford,	*Baltimore, Md.*,	E. E.
Nickels, Charles Bu-ton,	*Toledo, O.*,	E. E.
Ordway, Alonzo Benton,	*Marshalltown, Ia.*,	C. E.
Orr, Lester Benson,	*Mt. Hope*,	E. E.
Outzen, Andrew Newton,	*Madison*,	E. E.
Pawling, Robert Alonzo,	*Milwaukee*,	M. E.
Petrie, Walter W.,	*Fond du Lac*,	G. E.
Popp, Lee W.,	*Waterloo, Ia.*,	E. E.
Post, Herbert Lee,	*Black River Falls*,	C. E.
Rankin, Hiram Smith,	*Milwaukee*,	M. E.
Reynolds, Benjamin Smith,	*Milwaukee*,	G. E.
Ripley, Fred Hubert,	*Oakfield*,	M. E.
Robinson, Wallace Alexander,	*Spokane, Wash.*,	C. E.
Roemer, Richard Quirin,	*Madison*,	M. E.
Roherty, John Neal,	*Evansville*,	C. E.
Rustone, Berlin Atwood Theodore,	*Deerfield*,	C. E.
Saxton, Ren George,	*Madison*,	C. E.
Schaefer, Harry,	*Davenport, Ia.*,	G. E.
Scherer, Andrew Charles,	*Chicago, Ill.*,	C. E.
Schroeder, Edward Herman,	*Wausau*,	E. E.
Schuetz, Albert August,	*Milwaukee*,	G. E.
Schwalbe, William Louis,	*Milwaukee*,	C. E.
Searles, Charles Leo,	*Brodhead*,	E. E.
Shea, John Richard,	*Oshkosh*,	E. E.
Shipek, Adolph,	*Antigo*,	E. E.
Shurts, Clarence Leon,	*Madison*,	E. E.
Smith, Glen Edward,	*Madison*,	E. E.
Smith, Leathem Daley,	*Sturgeon Bay*,	C. E.
Springer, Ernest John,	*Milwaukee*,	E. E.
Steinberg, Ernest Joseph,	*North Freedom*,	E. E.
St. George, Arthur Baldwin,	*Nashota*,	E. E.
Stocker, Edward Charles,	*Platteville*,	C. E.
Stocker, George Patrick,	*Platteville*,	C. E.
Stoelting, Roland Emil,	*Oconto*,	C. E.
Stoops, Charles Warren,	*Richland Center*,	C. E.
Storer, Raymond Fredrick,	*Des Moines, Ia.*,	C. E.
Storr, Fredrick Montgomery,	*Oshkosh*,	C. E.
Sun, Yu-fong Louis,	*Sir-Chow, China*,	G. E.

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Sutherland, Ross,	*Janesville*,	Ch. E.
Swenholt, Helmer,	*Madison*,	G. E.
Teall, Thomas Tyler,	*Sparta*,	C. E.
True, Henry Alfonsa, Jr.,	*Denver, Colo.*,	C. E.
Urbutt, Carl Fred,	*Oconomowoc*,	C. E.
Van Auken, Claude Linn,	*Madison*,	C. E.
Van Auken, Kenneth,	*Madison*,	C. E.
Van Horn, Irving Hamilton,	*Aberdeen, S. D.*,	E. E.
Van Loon, William Owen,	*Midway*,	C. E.
Walker, Robert Yule,	*Madison*,	C. E.
Wallis, Leonard Griffith,	*Baltimore, Md.*,	C. E.
Weber, William Gustave,	*Milwaukee*,	G. E.
Wheeler, Harvey Babcock,	*Madison*,	E. E.
Whittaker, Elmer Horace,	*Fond du Lac*,	M. E.
Wickstrom, Gustav Adolph,	*Superior*,	M. E.
Willard, Adrian Anson,	*Wallace, N. D.*,	E. E.
Wille, Louis William,	*Milwaukee*,	Ch. E.
Wilson, Howard Anthony,	*Spokane, Wash.*,	E. E.
Wohlrab, Aloys Hugo,	*Milwaukee*,	G. E.
Wolf, Albert Matthias,	*Waukesha*,	C. E.
Wright, John David,	*Baraboo*,	E. E.
Wuerth, Robert,	*Sauk City*,	E. E.
Yager, Ralph Mark,	*Madison*,	C. E.
Younggren, Russie Cornelius,	*River Falls*,	E. E.
Zabel, William Paul,	*Sharon*,	E. E.
Zeidlhack, Felix Stephen,	*Milwaukee*,	C. E.
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SOPHOMORES

Abbott, Edwin Albert,	*Burlington*,	C. E.
Allen, Carlton Harrison,	*Belleville*,	C. E.
Arnold, Walter Jacob,	*Kiel*,	E. E.
Baker, Egbert Eugene,	*Madison*,	E. E.
Ballschneider, Arno Louis,	*Sheboygan*,	E. E.
Barth, John Herman,	*Port Washington*,	C. E.
Bartlett, Charles Lynn,	*Milwaukee*,	C. E.
Belsky, Charles James,	*Dubuque, Ia.*,	E. E.
Bennett, Arthur Earl,	*Clintonville*,	C. E.
Bennett, Benjamin Floyd,	*Jeannette, Pa.*,	Ch. E.
Bickelhaupt, Carroll Owen,	*Aberdeen, S. D.*,	E. E.
Bickelhaupt, William Verne,	*Aberdeen, S. D.*,	E. E.
Birchard, Ralph Rogers,	*Omaha, Neb.*,	G. E.

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Blair, Milton Johnston,	*La Crosse*,	G. E.
Boley, Arthur Leland,	*Sheboygan*,	Ch. E.
Bonesteel, Lloyd Gomer,	*Padua*,	G. E.
Boon, Leonard Francis,	*Appleton*,	C. E.
Booth, Romeyn Bassett,	*Milwaukee*,	C. E.
Bragg, Chester Homer,	*Lake Mills*,	M. E.
Braun, Rudolph,	*Milwaukee*,	E. E.
Bray, Charles Paige,	*Oshkosh*,	C. E.
Budd, Henry Lockwood,	*Madison*,	E. E.
Buell, Theodore Thomas,	*Burlington*,	E. E.
Bundy, Roy Gilbert,	*Milwaukee*,	C. E.
Caldwell, Walter Gaynor,	*Pewaukee*,	C. E.
Cannon, Horace Henry,	*Camden, N. J.*,	C. E.
Carnes, William Eugene,	*Watertown, N. Y.*,	C. E.
Chadwick, Arthur Benjamin, Jr.,	*Milwaukee*,	Ch. E.
Chamberlain, George Willard,	*Whitewater*,	C. E.
Charles, Edward Sanford,	*Madison*,	E. E.
Cnare, Frank,	*Madison*,	C. E.
Cooper, Fennimore,	*Milwaukee*,	C. E.
Crowell, George G.,	*Almond*,	E. E.
Crusoe, George Wellington Rayfield,	*Rhinelander*,	E. E.
Cuno, Charles Herman, Jr.,	*Oconomowoc*,	M. E.
Curtiss, Edwin Ford,	*Madison*,	E. E.
Damm, Paul Emil,	*Lancaster*,	E. E.
Daniells, Percy Hiram,	*Tomah*,	C. E.
Davies, Evan Jay,	*Spring Green*,	C. E.
Davies, Frederick Earl,	*Fox Lake*,	C. E.
Davis, Louis Samson,	*Granton*,	C. E.
Dean, George Franklin,	*Milwaukee*,	E. E.
Decker, Ramsay Prescott,	*Madison*,	E. E.
Devine, Michael Henry,	*Algoma*,	C. E.
Dietrich, Fred William,	*Randolph*,	E. E.
Dillon, Carl Duncan,	*Madison*,	C. E.
Dodge, Paul Condé,	*Madison*,	G. E.
Doherty, Ralph Edmund,	*Grafton, N. D.*,	G. E.
Donnelly, John Patrick,	*Milwaukee*,	E. E.
Downing, Raymond Clarence,	*Watertown*,	Ch. E.
Draves, William August,	*Milwaukee*,	E. E.
Edmund, Harvey William,	*Fond du Lac*,	G. E.
Falk, Gordon Sands,	*Milwaukee*,	G. E.
Fisher, Charles Roswell,	*Beaver Dam*,	C. E.

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Freschl, Max Alexander,	*Milwaukee*,	Ch. E.
Fretz, Edmund Anthony,	*Milwaukee*,	C. E.
Fretz, Leo Armand,	*Milwaukee*,	E. E.
Fucik, Robert Alexander,	*Williams Bay*,	E. E.
Gayton, Robert Fischer,	*Pueblo, Colo.*,	C. E.
Gibbs, Earle Edwin,	*Madison*,	C. E.
Gibson, Leo Edgar,	*Fort Atkinson*,	E. E.
Gillett, Orson Clarke,	*Superior*,	C. E.
Gilman, Alexander Falk,	*Racine*,	C. E.
Gingrich, Hiram Eugene,	*Rockford, Ill.*,	C. E.
Gleason, Edward Peck,	*Madison*,	M. E.
Glick, George Abbott,	*Marshalltown, Ia.*,	M. E.
Gochnauer, Chael Orbison,	*Appleton*,	C. E.
Godfrey, Paul Swan,	*Wauwatosa*,	M. E.
Goldsmith, Floyd Reid,	*Denver, Colo.*,	C. E.
Goldsworthy, Lindley Crawford,	*Prescott*,	M. E.
Gottschall, Herbert H.,	*Madison*,	E. E.
Graham, Fred Martin,	*Falls City, Neb.*,	E. E.
Hall, Sidney Phillips,	*Madison*,	C. E.
Halverson, Norman Clarence,	*Manitowoc*,	C. E.
Hambrecht, Albert Lewis,	*Madison*,	C. E.
Hammond, Lewis Merrick,	*Wauwatosa*,	C. E.
Hanson, Thomas Christian,	*Manitowoc*,	E. E.
Harms, Henry Walton,	*Eau Claire*,	C. E.
Hart, Ray Weston,	*Madison*,	C. E.
Hebberd, Loren Loomis,	*Chicago, Ill.*,	M. E.
Hidalgo, Augusto,	*Manila, P. I.*,	Ch. E.
Hinn, William Henry,	*Fennimore*,	C. E.
Hintze, Philip Henry,	*Stoughton*,	C. E.
Hitchcock, Frank Artemas,	*Edgerton*,	C. E.
Hoefer, Irving Burton,	*Freeport, Ill.*,	E. E.
Hoeveler, John Alexander,	*Madison*,	E. E.
Holverscheid, Robert,	*Hinsdale, Ill.*,	M. E.
Hood, Harl E.,	*Madison*,	M. E.
Horneffer, Fred Clarence,	*Milwaukee*,	C. E.
Houlehan, Edward Shea, Jr.,	*Tomahawk*,	E. E.
Howard, John Gardner,	*Barneveld*,	E. E.
Iakisch, Robert,	*Granton*,	C. E.
Irwin, Oliver Lloyd,	*Madison*,	E. E.
Jaekel, Elmor Carl,	*Antigo*,	C. E.

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Kastler, Edward Louis,	*Racine*,	M. E.
Keator, Edward Hollis,	*Moline, Ill.*,	G. E.
Kemp, William Bilton,	*Madison*,	E. E.
Kirwan, Matthew Joseph,	*Kaukauna*,	C. E.
Klinger, William August,	*Milwaukee*,	C. E.
Kohler, George William,	*Madison*,	C. E.
Kringel, August Emil,	*Wauwatosa*,	C. E.
Ladd, Lester Lyle,	*Peru, Ill.*,	G. E.
Lane, Frank Grove,	*Beloit*,	M. E.
Larson, Lawrence Carroll,	*Tomah*,	M. E.
Lauderdale, Jesse Edward,	*Elkhorn*,	E. E.
Leahy, Earl Frank,	*Marshfield*,	C. E.
Lehmann, Herbert James,	*Madison*,	E. E.
Lent, Wilmar Francis,	*Washington, D. C.*,	E. E.
Lidral, John Frank,	*Algoma*,	C. E.
Liesenberg, Alvin Richard,	*Cedarburg*,	E. E.
Linley, Frederick Hewitt,	*Milwaukee*,	C. E.
Lowell, John Wesley,	*Washington, D. C.*,	C. E.
Lunenschloss, Edward Joseph,	*Richland Center*,	E. E.
Magdsick, Henry Herbert,	*Burlington*,	E. E.
Mahony, Francis David,	*Fond du Lac*,	E. E.
Mainland, James,	*Racine*,	E. E.
Marshall, Emory Miller,	*Des Moines, Ia.*,	G. E.
May, Arthur Edward,	*Madison*,	C. E.
McConnell, Lyman Scott,	*Omaha, Neb.*,	G. E.
McGinty, Michael James,	*Elroy*,	E. E.
McLeod, Robert Henry,	*Eau Claire*,	E. E.
McMillan, William Archibald,	*Milwaukee*,	M. E.
Meinicke, Alvin Edward,	*Milwaukee*,	E. E.
Muesse, Alán Ralph,	*Lancaster*,	E. E.
Murrish, William Ulysses,	*Mazomanie*,	E. E.
Nadeau, Oscar Eugene,	*Marinette*,	G. E.
Nance, Archebald Whitfield,	*Monroe*,	C. E.
Nelson, Ernest Benjamin,	*Iron River*,	C. E.
Nelson, George Winfred,	*Lena, Ill.*,	E. E.
Nelson, Helmer Clarence,	*Madison*,	C. E.
Newman, Herbert Joseph,	*Milwaukee*,	E. E.
Olds, Howard Arthur,	*Milwaukee*,	E. E.
Osthoff, Oscar Paul,	*Elkhart Lake*,	C. E.
Ovitt, Arthur Wilkie,	*Green Lake*,	G. E.

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Patitz, George John,	*Chicago, Ill.*,	E. E.
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Pease, Harold Tapley,	*Williston, N. D.*,	C. E.
Pease, Spencer Adams,	*Wauwatosa*,	E. E.
Pengelly, Roy Leo,	*Madison*,	E. E.
Pergande, Arthur August,	*Cedarburg*,	E. E.
Peterson, Orrin Peter,	*Wausau*,	G. E.
Pettibone, Ira Frederick,	*Kansas City, Mo.*,	G. E.
Pierce, John Alexander,	*Elkhorn*,	C. E.
Plamondon, George Octave,	*Elkhorn*,	C. E.
Polzin, Arthur William,	*Madison*,	C. E.
Reinert, Walter Julius August,	*Milwaukee*,	C. E.
Reynolds, Thomas Myrick,	*Milwaukee*,	C. E.
Richardson, Elwood Arthur,	*Turtle Lake*,	E. E.
Richardson, Linwood Thomas,	*Turtle Lake*,	E. E.
Robertson, Almon Fulton,	*Livingston, Mont.*,	G. E.
Robertson, Andrew,	*Spring Green*,	C. E.
Robertson, Robert Earl,	*Fort Atkinson*,	C. E.
Rohde, William Charles Frederick,	*Marinette*,	E. E.
Rose, Boyd Barnes,	*Honey Creek*,	E. E.
Rote, Robert Lewis,	*Monroe*,	M. E.
Ruedebusch, Richard August,	*Mayville*,	M. E.
Scarcliff, George Allen,	*Janesville*,	C. E.
Schenkenberg, Frederick Bert,	*Racine*,	E. E.
Schmidt, Erving Wolfgang,	*Elkader, Ia.*,	E. E.
Schneider, Walter George,	*Madison*,	E. E.
Schulte, Walter Biersach,	*Madison*,	Ch. E.
Schultz, Arthur Fred,	*Manitowoc*,	M. E.
Schwartz, Adolph August,	*Brillion*,	C. E.
Shaffner, George Elden,	*Joliet, Ill.*,	G. E.
Shapiro, Samuel,	*Marshfield*,	E. E.
Sheppard, Frank Alexis,	*Fond du Lac*,	G. E.
Sherburne, Frank Valentine,	*Fremont*,	C. E.
Sherman, Myron Wood,	*Corpus Christi, Tex.*,	G. E.
Sherman, Walter John,	*Grand Rapids*,	E. E.
Shipley, George Abram,	*Madison*,	M. E.
Siefert, Paul Herman,	*Kaukauna*,	E. E.
Sjoblom, Alexander Theodore,	*Grantsburg*,	E. E.
Skene, Tom Davis,	*Chicago, Ill.*,	E. E.
Sladky, Alexander Carlton,	*Milwaukee*,	M. E.

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Spence, Aubrey Dayton,	*Camp Point, Ill.,*	C. E.
Spoor, Ivan Herbert	*Oshkosh,*	M. E.
Starkey, Harry Nicholl,	*Eau Claire,*	C. E.
Storey, Oliver Wendell,	*Milwaukee,*	Ch. E.
Suhs, Guy Harold,	*Waupaca,*	M. E.
Sumnicht, Henry Anton,	*Bonduel,*	E. E.
Sundby, George Martin,	*Milwaukee,*	C. E.
Tanner, Harold Ford,	*South Kaukauna,*	G. E.
Thiessen, Frank Carlton,	*Oshkosh,*	C. E.
Thoma, Andrew,	*Milwaukee,*	C. E.
Thompson, Albert Theodore,	*Menomonie,*	C. E.
Torkelson, Francis Arthur,	*Black River Falls,*	C. E.
Tourtellot, Edward Boyington,	*Hopkinton, Ia.,*	G. E.
Townley, John Campbell,	*Ithaca, N. Y.,*	G. E.
Trane, Reuben Nicholas,	*La Crosse,*	M. E.
Traxler, Henry,	*Milwaukee,*	C. E.
Trewartha, John Gribble,	*Hazel Green,*	G. E.
Tuthill, Fred Willis,	*Salina, Kan.,*	G. E.
Tuttle, Alonzo Harris,	*Richland Center,*	G. E.
Twining, Joseph La Verne,	*Monroe,*	M. E.
Van Slyke, John Daniel,	*Madison,*	G. E.
Vater, Fred,	*Madison,*	C. E.
Vicain, Elbin Justinius,	*Helena, Mont.,*	C. E.
Vrooman, John Robert,	*Superior,*	E. E.
Wagner, Karl Edward,	*Freeport, Ill.,*	C. E.
Waite, John Howard,	*Brooklyn,*	C. E.
Watke, Richard Puls,	*Fond du Lac,*	E. E.
Watson, Clarence Forbes,	*Ashland,*	C. E.
Wedlock, Frank Vivian,	*Mineral Point,*	E. E.
Wegg, David Spencer,	*Chicago, Ill.,*	E. E.
Wehner, Stephen,	*Madison,*	C. E.
Weidenfeller, Raymond Philip,	*Mineral Point,*	C. E.
Weigen, Anders Christian,	*Sun Prairie,*	E. E.
Welsh, John Thomas,	*Madison,*	E. E.
Wetzel, William John,	*Madison,*	C. E.
White, Albert Ray,	*Marinette,*	Ch. E.
Wiese, Otto,	*Avoca, Ia.,*	Ch. E.
Witt, William Henry,	*Marshfield,*	C. E.
Wohlrab, Sylvan William,	*Milwaukee,*	M. E.

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Wood, Harold Paul,	*Madison,*	C. E.
Woods, Charles Reynolds,	*Fond du Lac,*	G. E.
Yandre, Edward William,	*Johnson Creek,*	M. E.
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FRESHMEN

Acly, Claire Rogers,	*Madison.*
Aguilar, Rafael Hipolito,	*Candaba, Pam., P. I.*
Algeo, Harold Leigh,	*Chicago, Ill.*
Amidon, Harry Ur,	*Hartford.*
Anderly, Howard Merle,	*Brodhead.*
Andrus, Dexter Eli,	*Rockford, Ill.*
Angle, Jackson, Harry,	*Freeport, Ill.*
Astell, Leonard Keith,	*Madison.*
Baldwin, Harry Sherman,	*Prophetstown, Ill.*
Baldwin, Lawrence Merrill,	*Kenosha.*
Ball, Walton Cook,	*Union Grove.*
Bancroft, Thomas Elvin,	*Etna.*
Barclay, Arthur Jackson,	*Elgin, Ill.*
Barnet, Floyd,	*Chicago, Ill.*
Barth, Walter John,	*Cedarburg.*
Bates, Elbert Eric,	*Joliet, Ill.*
Battles, Tracy Raymond,	*Baraboo.*
Bautz, Walter George,	*Milwaukee.*
Beat, John,	*Riley.*
Beebe, Horace Merle,	*Fond du Lac.*
Beglinger, Clarence Henry,	*Superior.*
Bendt, Joseph Philip,	*Kenosha.*
Bennett, Edwin Charles	*Fort Collins, Colo.*
Bennett, Paul,	*Whitefish Bay.*
Birch, Albert,	*Fargo, N. D.*
Blackburn, Paul,	*Elgin, Ill.*
Blackburn, Ralph,	*Elgin, Ill.*
Blake, Harry Duvall,	*Black River Falls.*
Blankenagel, Emil Carl,	*Hartford.*
Blessing, Albert Hiram,	*Fennimore.*
Bogan, Alvin Johnson,	*Appleton.*
Borecky, Carl William,	*Ashland.*
Bossman, William Frederick,	*Horicon.*
Boyd, Ward Franklin,	*Marinette.*
Brictson, Otto Walter,	*Deerfield.*
Brook, Miles Winfield,	*Milwaukee.*

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Brooks, Arthur Howell,	*Zion City, Ill.*
Brue, Hans Nelson,	*De Forest.*
Bullard, Lester Hiram,	*Evansville.*
Bullis, Clifford Bentz,	*Eau Claire.*
Burgess, Leonel Glen,	*Janesville.*
Burmester, Everett Almond,	*Madison.*
Burroughs, Frederic Sidney,	*Milwaukee.*
Burt, Clayton Roger,	*Brodhead.*
Butterfield, Donald Kirk,	*Hartford.*
Caldow, George William,	*Janesville.*
Callen, Edwin William,	*Beaver Dam.*
Cantrell, William Furman,	*Downsville.*
Chapman, William Edgar,	*Dillon, Mont.*
Chler, Frank A.,	*Berlin.*
Coddington, Charles Spencer,	*Green Bay.*
Coffman, Harry Stringer,	*Madison.*
Cole, Fred Marriott,	*Beloit.*
Collins, Edmund Richard,	*Racine.*
Collins, Maurice William,	*Milwaukee.*
Cowan, Glen Parker,	*Kewaunee, Ill.*
Crozer, Thomas Rawling,	*Kewaunee, Ill.*
Curwen, William Harrison,	*Shullsburg.*
Cusack, James Michael,	*Darien.*
Dale, Drake Paul,	*Dunlap, Mo.*
Dean, John Chester,	*Rhinelander.*
Dickinson, Kendall Foote,	*Lake Geneva.*
Dodd, Roy Lyon,	*Milwaukee.*
Dehm, John Walter,	*Dane.*
Dorr, George Nicholi,	*Stoughton.*
Doucette, George Edward,	*Merrill.*
Dreun, Dawn Earling,	*Ottumwa, Ia.*
Dreyer, Elmer John,	*Janesville.*
Dunlap, Eugene,	*Madison.*
Dunlap, Louis Emory,	*Madison.*
Dunn, Arthur Burdette,	*Moline, Ill.*
Eastman, Charles Leslie,	*Milwaukee.*
Ebert, Royal Benjamin,	*Baraboo.*
Eldred, George,	*Berlin.*
Eldridge, Robert Benjamin,	*Sioux City, Ia.*
Elmore, William Chapman,	*Green Bay.*
Emerson, Charles John,	*Oregon.*

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Emerson, Melvin Frank,	*Spring Valley.*
Enders, William Jacob,	*Marinette.*
Esau, Carl William,	*Milwaukee.*
Esau, George Walter,	*Milwaukee.*
Fay, Cyril Anton,	*La Crosse.*
Fellows, Kenneth Elbert,	*Lodi.*
Fess, Perry Thomas,	*Madison.*
Fetzner, Edward John,	*La Crosse.*
Finner, Ewald Reinhard,	*Dodge.*
Firth, John Malcolm,	*South Orange, N. J.*
Follett, Richard Hillman,	*Marinette.*
Fowler, Allan Walter,	*Superior.*
Fowler, William Oliver,	*Humbird.*
Freeman, Harold Charles,	*Racine.*
Frey, Frank Armin,	*Milwaukee.*
Frost, Russell Edward,	*Topeka, Kan.*
Fryer, John Almeron,	*Whitewater.*
Fuente, Ernesto de la,	*Nadadores, Coah, Mex.*
Fuller, Judson Earl,	*Oak Park, Ill.*
Furstenberg, David August,	*Marshfield.*
Geidel, Carl Diedrich,	*Brandon.*
Giebel, Walter Cleveland,	*Nelson.*
Gillan, Paul Harned,	*Milwaukee.*
Gillett, Lawrence Farrington,	*Fond du Lac.*
Gilman, Edgar Dow,	*Minneapolis, Minn.*
Gilman, Stephen,	*Madison.*
Goodnow, Albert Clarke,	*Waukegan, Ill.*
Gosling, Arthur,	*Madison.*
Graham, Harold Moore,	*Mt. Carroll, Ill.*
Grant, Daniel McPherson,	*Milwaukee.*
Gratiot, Austin Flint,	*Shullsburg.*
Green, Kenneth Freeman,	*Waukesha.*
Grunert, Clarence Fred,	*Chicago, Ill.*
Gysbers, Arthur,	*Brandon.*
Haag, Edmund Clarence,	*Whitewater.*
Halseth, Carl Martin,	*Menomonie.*
Hamilton, Daniel De Leo,	*Superior.*
Handy, Edward Haven,	*Evanston, Ill.*
Hare, Kenneth Ross,	*Superior.*
Harlfinger, August Bernard,	*Albany, N. Y.*
Harwick, Guy Duval,	*Mineral Point.*

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Hathaway, Warner,	*Beaver Dam.*
Head, Clarence Eugene,	*Kenosha.*
Heald, Robert Pinkerton,	*Oak Park, Ill.*
Heath, William Clarkson,	*Capron, Ill.*
Heer, Frederick William,	*Munroe.*
Hendley, Albert Julian,	*Washington, D. C.*
Hewit, Earl John,	*Nashota.*
Hitchcock, Glen Olin,	*West Salem.*
Hoffman, Fritz J.,	*Madison.*
Holmboe, Harold,	*Chicago, Ill.*
Holmes, John Richard,	*Wakpole, N. H.*
Holverscheid, Harry,	*Hinsdale, Ill.*
Horstkotte, Fred William,	*Potlach, Idaho.*
Horton, Roy Seaton,	*Stewartville, Minn.*
Houck, Floyd Ervin,	*Spring Valley.*
Huff, Jesse S.,	*Rogers, O.*
Hughey, Lester Strasser,	*Belleville, Ia.*
Hutchinson, Foye Peabody,	*Appleton.*
Iakisch, John Rudolph,	*Granton.*
Ilgner, Howard Frederick,	*Milwaukee.*
Imp, Victor Leander Stephen,	*Milwaukee.*
Jacques, Hewit Blair,	*Delafield.*
Jarchow, Clayton Everette,	*Appleton.*
Johnson, Albert Emil,	*Whitewater.*
Johnson, Maurice,	*Bayfield.*
Kalsched, Edward Albert,	*Marshfield.*
Kamantigue, Jacinto Manila,	*Imus, Cavite, P. I.*
Keller, Aloysius Deony,	*Baraboo.*
Kerler, William John,	*Milwaukee.*
Kissinger, Alexander Philips,	*Chicago, Ill.*
Knauf, Arthur Raymond,	*Chilton.*
Koenig, Meinhardt Carl,	*Wausau.*
Kraatz, Karl Louis,	*Wausau.*
Kroening, Ralph Henry,	*Milwaukee.*
Lamont, Maurice Brereton,	*Aberdeen, S. D.*
Langdon, William Patrick,	*Janesville.*
Langwill, John Sutherland,	*Rockford, Ill.*
Laughlin, Earl Cletus,	*Antigo.*
Lawrence, Elmer Jackson,	*Beaver Dam.*
Lee, Harvey Richard,	*Janesville.*
Lee, Henry Olai,	*Windsor.*

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Lees, Walter Edwin,	*Mazomanie.*
Leins, William T.,	*West Bend.*
Leist, Raymond Anthony,	*West De Pere.*
Leonard, Harry William,	*Madison.*
Lewis, Harmon,	*Oak Park, Ill.*
Lightbody, James Nicholas,	*La Crosse.*
Littlewood, William Norman,	*Madison.*
Loweth, Frederick Curtis,	*Chicago, Ill.*
Lueders, Carl Marcus,	*Columbus.*
Lyon, Harley Wesley,	*Brandon.*
Macaraeg, Juan Guico,	*Binalonan, Pang., P. I.*
Mahre, Alvin August,	*Amery.*
Marston, Charles Leland,	*Appleton.*
Martin, Charles Richard,	*Spring Valley.*
MacArthur, Angus, Jr.,	*Madison.*
McDaniel, Walter Oliver,	*Darlington.*
McDougall, Shirley Alton,	*Whitewater.*
McFarland, Robert Ernest,	*Grand Rapids.*
McGrath, William Francis,	*Milwaukee.*
McGuire, Alfred Russell,	*Honey Creek.*
Mackay, William Campbell,	*Platteville.*
McKillop, William Langille,	*Racine.*
McKinney, Perry Osgood,	*Janesville.*
Mac Laren, Robert Arthur,	*Milwaukee.*
McNown, Mark Freeman,	*Mauston.*
Mears, George Sherman,	*Fond du Lac.*
Meinecke, Ferdinand, Jr.,	*Milwaukee.*
Mengel, Forest Foster,	*Oconomowoc.*
Menzies, David Archibald,	*Janesville.*
Miller, Bert E.,	*Madison.*
Miller, Jesse Eugene,	*Brodhead.*
Mills, Wallace Chamberlain,	*Janesville.*
Moore, John Wallis,	*Milwaukee.*
Moore, Lawrence Ervin,	*Emerald.*
Moore, Raymond Judson,	*Rushford.*
Moore, Roger Sherman,	*Brodhead.*
Morisette, Harold Ervin,	*Wausau.*
Moritz, Charles James,	*Madison.*
Morris, Lee,	*Joliet, Ill.*
Morse, Chester Arthur,	*Janesville.*
Moss, Leon,	*Sparta.*

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Moy, John Benjamin,	*Mondovi.*
Muck, Lee Frank,	*Jefferson.*
Mueller, Benjamin Harrison,	*Alma.*
Myers, Morris Thurman,	*Shawnee, Okla.*
Naber, Alexander Herman,	*Shawano.*
Neeson, James Seymour,	*Port Washington.*
Nelson, Martin Vincent,	*Madison.*
Nickell, George Harold,	*Waukesha.*
Odegard, Sager Louis,	*Merrill.*
Oehler, Alfred Geoffrey,	*Lake Mills.*
Packard, Gooding,	*Basco.*
Palmatier, Horace,	*Madison.*
Palmer, Glenn Alcott,	*Brodhead.*
Paulus, Edwin J.,	*Milwaukee.*
Pearsall, William Guilchrist,	*McGregor, Ia.*
Penn, Charles Thomas,	*Superior.*
Peters, Perry,	*Mauston.*
Petters, Ray Breitenstein,	*Fond du Lac*
Pflanz, Ernst Leopold,	*Milwaukee.*
Phelps, George Roy,	*Albany.*
Phipps, Roy Chester,	*Milwaukee.*
Pierson, Jay Joseph,	*Madison.*
Pineo, Frank Kiever,	*Duluth, Minn.*
Pope, Louis Frederick,	*Racine.*
Porter, Joseph,	*Madison.*
Potter, Byron Sears,	*Madison.*
Potter, Edward Jesse,	*Milwaukee.*
Power, Thomas Francis,	*Madison.*
Pugh, William Harold,	*Racine.*
Raetzmann, Arthur Henry,	*Elroy.*
Ramos, Juan Manuel,	*Camaguey, Cuba.*
Rauchenstein, Emil,	*Rice Lake.*
Reggiardo, Juan,	*Piedras, Arg. Rep., S. A.*
Reilly, Thomas William,	*Port Washington.*
Rick, Harry Walter,	*Augusta.*
Robbins, Stanley Curtis,	*Rice Lake.*
Roberts, Chapin,	*Oak Park, Ill.*
Roberts, Hugh Morine,	*Superior.*
Roberts, John Fabour,	*West Allis.*
Rollis, Bartol Huntington,	*Stoughton.*
Roth, William Arthur,	*Monroe.*

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Rueping, Henry John,	*Fond du Lac.*
Salas, Mariano Julio,	*Molo, Iloilo, P. I.*
Sawyer, Elmer Caldwell,	*Augusta.*
Schmidt, Herbert Edgar,	*Superior.*
Schoen, Raymond William,	*Madison.*
Schroeder, George Edward,	*Augusta.*
Scudder, Charles Morrison,	*Marinette.*
Shonat, Archie,	*Galesville.*
Simons, Richard Wharton,	*Chicago, Ill.*
Slade, John Lathrop,	*Hinsdale, Ill.*
Smith, Chauncey Lester,	*Waukesha.*
Smith, Roy Porter,	*Beloit.*
Sneen, Oscar Arthur,	*Stanley.*
Sniveley, Edward Taylor,	*Menomonie.*
Solsrud, Hilman,	*Whitehall.*
Sonderegger, Victor Hugo,	*Milwaukee.*
Sorenson, Benjamin,	*Beloit.*
Stanley, Stewart Woods,	*Sioux Falls, S. D.*
Stanley, Ward Allen,	*Hot Springs, S. D.*
Stauffacher, George Fred,	*Monroe.*
Stearns, Frank Foster,	*Monroe.*
Steinhagen, Ewald Daniel,	*Milwaukee.*
Stephens, Andrew,	*Fort Logan, Mont.*
Stephens, James Coldazzier,	*Evansville.*
Stephenson, Louis De Witt,	*Madison.*
Stock, Hugo Louis,	*Madison.*
Stoppenbach, Frank Emil,	*Jefferson.*
Sun, Jeefong Roy,	*Shanghai, China.*
Swasey, Arthur Morton,	*De Kalb, Ill.*
Sweet, Nathan Clark,	*Fond du Lac.*
Talbot, Lyman Robert,	*Sioux City, Ia.*
Talbot, Ray George,	*Sparta.*
Tate, Philip Rhodes,	*Viroqua.*
Taylor, Herbert Cecil,	*Lancaster.*
Teitgen, Herbert Albert,	*Manitowoc.*
Terry, Charles Earl,	*Tomah.*
Theurer, Fritz Louis,	*Milwaukee.*
Thom, George Watt,	*Appleton.*
Thomas, James Hiram, Jr.,	*Eau Claire.*
Thompson, Oscar Theodore,	*Kaukauna.*
Trousdale, Paul Whitney,	*Madison.*

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Ullius, Frederick William,	*Milwaukee.*
Valenzuela, José,	*Guagua, Pam., P. I.*
Valverde, Carlo Albert,	*Lima, Peru.*
Veerhusen, Herman Helm,	*Madison.*
Vinje, Arthur Miller,	*Superior.*
Vollmer, George Arthur,	*Alma.*
Voyer, Leonard Eugene,	*Junction City.*
Vroman, Harry Westrope,	*Verona.*
Ward, Oscar Gardien, Jr.,	*Fond du Lac.*
Warner, Loren Burdette,	*Windsor.*
Warner, Raymond Earl,	*Windsor.*
Week, Erling Finch,	*Spokane, Wash.*
Wegner, Arnold Adolph,	*Wausau.*
Wehrmann, Carl John,	*Madison.*
Weinhagen, Louis Frederick,	*Milwaukee.*
Weldon, John Thomas,	*Racine.*
Wellman, Walter,	*Madison.*
Whelan, John Baptist,	*Chippewa Falls.*
Whisman, Harlan Merritt,	*Huron, S. D.*
White, George Leybourne,	*Kewaunee, Ill.*
White, Robert James,	*Beresford, S. D.*
Wied, Walter Evan,	*Waupaca.*
Wilder, Frank Blackman,	*Evansville.*
Williams, Charles Loyal,	*Waukesha.*
Williams, Erastus Appleman, Jr.,	*Bismark, N. D.*
Williams, Milo,	*Pierre, S. D.*
Winter, Arthur Field,	*New Richmond.*
Wisner, Leonard Ray,	*Merrill.*
Witherspoon, Burton Harris,	*Shawnee, Okla.*
Woffenden, John Bernard,	*Bloomington.*
Wolfert, Clarke Kryn,	*Sheboygan.*
Wood, LeRoy Emory,	*Madison.*
Woolrich, Willis Raymond,	*Mineral Point.*
Wright, Donald Bassett,	*Berlin.*
Wurl, Frank Louis,	*Appleton.*
Zander, August William,	*Algoma.*

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ADULT SPECIALS

Alberts, Oscar Bernhardt,	*Kewaunee,*	——
Andrews, Walter Cooper,	*Baraboo,*	Ch. E.

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Barrows, Robert Clark,	*Kansas City, Mo.*,	——
Becker, Erwin William,	*Milwaukee*,	——
Bleyer, Addison, Milton,	*Milwaukee*,	——
Bleyer, Lloyd Garrison,	*Milwaukee*,	——
Bucher, Henry,	*Madison*,	C. E.
Crisp, Fred William,	*Washington, D. C.*,	——
Crocker, Arthur George,	*Madison*,	G. E.
Glover, Louis Earle,	*Oshkosh*,	——
Greenwood, Charles Herbert,	*Milwaukee*,	——
Harlow, John Amerphool,	*Janesville*,	C. E.
Hatch, Walter Adams,	*Iola*,	——
Henes, George Lewis,	*Milwaukee*,	——
Henke, Fred Christian,	*Wautoma*,	C. E.
Heuser, Charles Godfrey,	*Milwaukee*,	G. E.
Holeton, George Richard,	*Madison*,	——
Howard, Gerrold,	*Beloit*,	M. E.
Hoyt, Ralph Sherman,	*Scotia, N. Y.*,	——
Jackman, Alwyn Sharp,	*Madison*,	——
Jones, Charles Edward,	*Cincinnati, O.*,	C. E.
Keese, Matthew Francis,	*South Milwaukee*,	M. E.
Knebes, Erwin Lewis,	*Milwaukee*,	——
Koenig, Herman Henry,	*Milwaukee*,	E. E.
Luke, Oren Victor,	*San Antonio, Tex.*,	——
Lupinski, Oswald,	*Milwaukee*,	C. E.
Martin, Andrew Henry,	*Bloomer*,	E. E.
McLean, James Donald,	*Beloit*,	——
McQueen, Sherman John,	*Superior*,	——
Morton, James Duncan,	*Madison*,	E. E.
Nichol, Walter Howard Leslie,	*Marinette*,	M. E.
Nuti, Charles Bennett,	*Glen Haven*,	E. E.
Reardon, John Emmet,	*Milwaukee*,	——
Ross, Walter Carl,	*Milwaukee*,	——
Ryan, James Thurston,	*Wausau*,	M. E.
Schikowski, Walter Herman,	*Milwaukee*,	——
Schwada, Joseph Philip,	*Milwaukee*,	——
Sellmer, Edwin Oscar,	*Milwaukee*,	——
Smart, Cyrus Francis,	*Dodgeville*,	——
Steudel, George Elias,	*Chilton*,	M. E.
Tanghe, Henry Franklin,	*Milwaukee*,	——

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Werner, Max Alfred,	*Milwaukee,*	C. E.
Zantow, Henry Carl,	*Baraboo,*	M. E.

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COLLEGE OF LAW

Senior Class

Baker, John Franklin, A. B.,	*Madison.*
Brabant, Edmund Joseph,	*Madison.*
Breidenbach, Otto Henry, A. B.,	*Milwaukee.*
Bullock, William Loring, B. S.,	*Madison.*
Calkins, Frank Waldo,	*Stevens Point.*
Conlan, Lawrence Neil,	*Milwaukee.*
Copp, Ellen Adelaide, A. M., B. D.,	*Madison.*
Cowels, Herbert Van, A. B.,	*Madison.*
Evans, Newton William,	*Dousman.*
Fawcett, Frank Lester,	*Platteville.*
Ferry, Robert Phillips, A. B.,	*Milwaukee.*
Foley, James Doyle, A. B.,	*Milwaukee.*
Galloway, Alvin Wilson,	*Poynette.*
Graham, James Blain, A. B.,	*Roberts.*
Gorman, Edward Patrick,	*Wausau.*
Hall, Charles Harold,	*Portage.*
Hannaford, Frank Howard,	*Kansasville.*
Hetzel, Ralph Dorn, A. B.,	*Madison.*
Hueffner, Martin Matthew, A. B.,	*Racine.*
James, Albert Earl, A. B.,	*Madison.*
Kelm, William Otto,	*Portage.*
McDougal, Earl Loren,	*Milwaukee.*
McGraw, William Don, A. B.,	*Chippewa Falls.*
McNally, Walter Harry,	*Madison.*
Morgan, John Jeremiah, A. B.,	*Cascade.*
Morter, Robert J.,	*Okee.*
Schmidt, Richard August,	*West De Pere.*
Schoetz, Max. Jr., A. B.,	*Menasha.*
Smongeski, Anton Lawrence,	*Two Rivers.*
Snider, John Ray,	*Kilbourn.*
Thomas, Mary Ella, A. B.	*Madison.*
Twesme, Albert Theodore, A. B.	*Galesville.*
Wolters, Oscar Lambertus,	*Sheboygan.*
Zavitosky, Louis Anton, A. M.,	*Milwaukee.*

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MIDDLE CLASS

Affeldt, George August,	*Milwaukee.*
Atwell, William Ensign,	*Stevens Point.*
Barlow, Elmer Elbert,	*Arcadia.*
Benson, Guy Alfred,	*Racine.*
Black, Oscar McDonald,	*Madison.*
Boyden, Allan Leslie, Ph. B.,	*Green Bay.*
Brookings, Eugene,	*Madison.*
Bushnell, Alfred H., A. B.,	*Lancaster.*
Collins, John,	*Hillsboro.*
Cook, Robert William,	*Green Bay.*
Curkeet, William Robert,	*Madison.*
Doyle, William Thomas,	*Fennimore.*
Dreutzer, Carl Ebbe,	*Sturgeon Bay.*
Eder, Joseph, A. B.,	*Milwaukee.*
Galbraith, Ernest John,	*Decatur, Ill.*
Gardner, John David,	*Platteville.*
Gauerke, John Walter,	*Green Bay.*
Graebner, George John,	*Milwaukee.*
Gruenwald, Arthur Hermann,	*Oshkosh.*
Hall, Charles Norton, A. B.,	*Madison.*
Hannan, George Francis, A. B.,	*Milwaukee.*
Haseltine, Winfred David,	*Madison.*
Hill, Carl Newell,	*Spring Green.*
Howitt, Harvey Matthew,	*Pewaukee.*
Janecky, Adolph Rudolph,	*Racine.*
Johnson, James Albert, A. B.,	*Milwaukee.*
Karrow, Herman Henry,	*Milwaukee.*
Korstad, Fred,	*Los Angeles, Cal.*
Lehman, Don Raymond,	*Decatur, Ill.*
Lehner, Adolph, Philip,	*Princeton.*
McLane, Arthur C., Ph. B.,	*Larimore, N. D.*
Miller, John Bernard,	*Lyndon Sta.*
Miltimore, Max,	*Janesville.*
Noyes, Roy Enoch,	*Baraboo.*
Olson, Conrad Patrick,	*Algoma.*
Pease, Harlow Francis,	*Watertown.*
Pfiffner, Joseph Roe,	*Stevens Point.*
Philp, Leonard Hacker,	*Polo, Ill.*
Prehn, William Arthur,	*Marathon.*

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Riley, James Patrick,	*Elroy.*
Riley, Miles Charles,	*Milwaukee.*
Rogers, Harlan Bethune,	*Portage.*
Rogers, Selden Wallace,	*Portage.*
Sauthoff, Harry, A. B.,	*Madison.*
Schram, Peter Henry,	*Madison.*
Shaff, John Ostrander, B. S. A.,	*Camanche, Ia.*
Shockley, Dale Curry, A. B.,	*Darlington.*
Stephenson, Roy,	*Sturgeon Bay.*
Webster, Lawrence Benjamin,	*Madison.*
Wiggenhorn, Ralph Guido,	*Watertown.*
Williams, Leigh Lawrence,	*Iowa Falls, Ia.*
Williams, Mark Levins,	*Milwaukee.*
Wolfe, Hubert Otto,	*Appleton.*
Woodruff, Wendell,	*Mondovi.*
Wright, Colin Wilson, Jr.,	*Monroe.*

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JUNIOR CLASS

Anderson, Elvin Douglas,	*North Crandon.*
Bong, Carl Charles,	*Green Bay.*
Brown, Harry Willard,	*Columbus.*
Crocker, Frank Albert,	*Neillsville.*
Cunningham, Arthur James,	*Beloit.*
Dean, Archie Tabor,	*Eau Claire.*
Donnelly, Emmett Archybalde,	*Milwaukee.*
Ford, John Patrick,	*Rosendale.*
Harnden, Emery David,	*Whitehall.*
Jenswold, Frank Ernest,	*Baraboo.*
Kerr, William Dunton, A. B.,	*Chicago.*
McComb, Archie,	*Milton.*
McMahon, Edward Michael,	*Milwaukee.*
Millmann, Charles Frank, A. B.,	*Milwaukee.*
Mills, Thomas Emmet, A. B.,	*Beloit.*
O'Connor, John Peasler,	*Superior.*
Puchner, Rudolph Edward,	*Wittenberg.*
Rigney, Stephen John,	*Scioto Mills.*
Rounds, Raymond Kenneth, A. B.,	*Blaine, Wash.*
Schoenfield, William Daniel,	*Madison.*
Stengel, Alvin Lawrence,	*Jefferson.*
Tipton, Leo Maurice, A. B.,	*East Las Vegas, N. M.*
Whitney, Wildon Forest,	*Whitewater.*

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Winslow, John Seymour,	*Madison.*
Zollmann, Carl Frederick Gustav,	*Horicon.*

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STUDENTS IN OTHER COLLEGES ELECTING LAW STUDIES

Benton, Homer Herrington,	*Richland Center.*
Brindley, Elbert Edwin,	*Richland Center.*
Colignon, John Joseph,	*Sturgeon Bay.*
Dohmen, Fred Wentworth,	*Milwaukee.*
Floete, Franklin Grotewohl,	*Armour, S. Dak.*
Frost, Raymond Baker,	*Almond.*
Goldschmidt, William Jacob,	*Milwaukee.*
Hannan, William Frawley,	*Milwaukee.*
Heinz, Adolph,	*Madison.*
Hornbeck, Stanley,	*Denver, Colo.*
Jones, Edwin Converse,	*Portage.*
Lambeck, Arthur H.,	*Milwaukee.*
Larsen, Charles Sumner,	*West Green Bay.*
Michelson, Albert G., B. L.,	*Mt. Horeb.*
Patterson, Mark Lawrence,	*Baraboo.*
Rademaker, Oscar,	*Madison.*
Roehl, Julius Otto,	*Milwaukee.*
Skinner, John Sharpe,	*Princeton, Ill.*
Sletten, Obert,	*La Crosse.*
Smith, Charles Forster, Jr.,	*Madison.*
Smith, William Harvey, Jr.,	*Mamaroneck, N. Y.*
Stark, Charles William,	*Tiffany.*
Stephenson, Willard L.,	*South Bend, Ind.*
Stroud, Ray Morris,	*Portage.*

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UNCLASSIFIED

Adamson, Alfred Byron,	*Eldorado.*
Bacon, King Myron,	*Antigo.*
Clifford, Eugene Arthur,	*Juneau.*
Darrow, Joseph Daniel,	*Argyle.*
Dorwin, Harvey Crosby,	*Sparta.*
Elmer, Edward Wenzel,	*Kelnersville.*
Fisher, Frank Whitney,	*Janesville.*
Hartley, Clarence Joseph,	*Superior.*
Jones, Mark Foulkes,	*Sparta.*
Luedke, Leo Charles,	*Milwaukee.*

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McKenna, John Falls,	*Platteville.*
Morse, Thomas Countryman,	*Princeton.*
Murat, Walter Bernard,	*Stevens Point.*
Murphy, Peter James,	*Chippewa Falls.*
Pergler, Charles,	*Chicago, Ill.*
Puls, Charles Frank,	*Milwaukee.*
Smith, Frederick Ansel,	*Chippewa Falls.*
Strang, Clive Joseph,	*Alexandria, Minn.*
Timm, Walter Henry,	*Plymouth.*

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COLLEGE OF AGRICULTURE

Long Course—Senior Class

Amott, Albert Louis,	*Viroqua.*
Barker, Earl Slayton,	*Chippewa Falls.*
Billings, Carl Emery,	*Cobb.*
Burch, Dallas Stockwell,	*Milwaukee.*
Cardenas, Frederico Felipe,	*Saltillo, Coah, Mex.*
Carpenter, Nathaniel Elliott,	*Evanston, Ill.*
Charles, William Mortimer,	*Madison.*
Cottingham, Erwin Yandell,	*Madison.*
Davidson, Tom Ruston,	*Evansville, Ind.*
Faville, Alpheus Davis,	*Lake Mills.*
Hammer, Bernard Wernick,	*Hillsboro.*
Hatch, Kirk Lester,	*Winneconne.*
Hill, George Bradbury,	*Milwaukee.*
Jalandoni, Joseé H.,	*Jaro, Iloilo, P. I.*
Johnson, James,	*Deerfield.*
Kadonsky, Joseph Frank,	*Dorchester.*
Lloyd-Jones, Orren,	*Hillside.*
Lothe, Herbert,	*McFarland.*
Marshall, Roy R.,	*Madison.*
Moseley, Raymond Winthrop,	*Madison.*
Robertson, James Brownlee,	*Spring Green.*
Ryall, Bryant Raymond,	*Augusta.*
Schroeder, Walter Carl,	*West Bend.*
Schwenker, Philip Frederic,	*La Crosse.*
Sevilla, Andres Marcario,	*Palo, P. I.*
Smith, Arthur George,	*Blue Mounds.*
Steenbock, Harry,	*Madison.*
Steinhaus, Walter Earnest,	*Madison.*

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Sylvester, Walter William,	*Seymour.*
Theige, Karl Johannes,	*Viroqua.*
Walster, Harlow Leslie,	*Spring Green.*

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JUNIOR CLASS

Candee, Ben Steele,	*Hinsdale, Ill.*
Curtis, Joseph,	*New Lisbon.*
Detjen, Louis Reinhold,	*Algoma.*
Gapen, Charles, Earl,	*Monroe.*
Hall, Douglas,	*Ann Arbor.*
Hartung, William John,	*Milwaukee.*
Humphreys, John Moses,	*Madison.*
Kolb, Roland A.,	*Cleveland.*
Lassetter, William Casper,	*Villa Rica, Ga.*
Lathrop, Alfred Tennyson,	*Madison.*
Leverich, Edward Starr,	*Sparta.*
Lewis, Marshall,	*Milwaukee.*
Marken, Richard Louis,	*Valders.*
Matheson, Jesse Kenneth,	*Elkhorn.*
McFetridge, William Lauren,	*Oshkosh.*
McNelly, Chester Le Roy,	*Caledonia, Minn.*
Messmer, John,	*Milwaukee.*
Mihills, Donald Ross,	*Fond du Lac.*
Morris, William Earl,	*Madison.*
Musback, Fred Ludwig,	*Fredonia.*
Nelson, Louis,	*Eau Claire.*
Oosterhuis, Alvin Cecil,	*Sheboygan Falls.*
Pickert, Jared Curtis,	*Berlin.*
Porter, William Leon,	*Fond du Lac.*
Reif, Walter John,	*Madison.*
Richards, Morris Wilford,	*Madison.*
Ruzek, Charles Vladis,	*Watertown.*
Seamans, Herbert Lyle,	*Madison.*
Selke, George Henry,	*Madison.*
Stocker, Albert,	*Sauk City.*
Thompson, William Eugene,	*Somers.*
Truog, Emil,	*Arcadia.*
Washburn, Edgar Bassett,	*Athelstane.*
Wheelwright, Vivian Rowley,	*Belleville.*
White, William,	*Madison.*
Zentner, Francis Henry,	*Madison.*

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Sophomore Class

Borja, Victoriano S.,	*Santa Cruz, Lag., P. I.*
Buchanan, Paul Hyde,	*Indianapolis, Ind.*
Cramton, Burton Lamont,	*Madison.*
Dacy, George Harold,	*Woodstock, Ill.*
Dudgeon, Sidney Ball,	*Madison.*
Gafke, Arthur Joseph,	*Oregon.*
Gaston, José,	*Silay, Occ., Negros, P. I.*
Graber, Laurence Frederick,	*Mineral Point.*
Heineck, William Edward,	*Madison.*
Hickcox, Orren Irving,	*Spring Green.*
Kuhlman, Arthur Henry,	*Lowell.*
Landsberg, Paul Williams,	*London, Eng.*
Le Clair, Carl Arnie,	*Green Bay.*
Leith, Benjamin Donald,	*Van Dyne.*
Marshall, James Disraeli,	*Madison.*
Matheson, Forrest Day,	*Elkhorn.*
Osborne, Oliver Martin,	*Oshkosh.*
*Porter, Paul Bacon,	*Evansville.*
Reinhardt, Richard Franklin,	*Nelson.*
Severson, Burns Oscar,	*Stoughton.*
Showers, Milton Walter,	*Mazomanie.*
Sievers, Fred John,	*Madison.*
Soriano, Oscar,	*Manila, P. I.*
Tillotson, Frank Waite,	*Madison.*
Torrance, William John,	*La Crosse.*
†Winteler, Casper,	*Oshkosh.*

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Freshmen Class

Axley, Walter,	*Cleveland.*
Baer, Arthur Christopher,	*West Bend.*
Banker, Paul Phillip,	*Ft. Atkinson.*
Barmore, Trevor Jay,	*Monroe.*
Bean, Roy Perry,	*Retreat.*
Bergh, Otto Ingeman,	*Hendrum, Minn.*
Beye, Lawrence Syford,	*Chicago, Ill.*
Blank, George August,	*Grafton.*
Burke, Edwin Eugene,	*Waukesha.*

*Died February 21, 1908.
†Died October 23, 1907.

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Canavan, John Patrick,	*Appleton.*
Carter, George Byron,	*Lancaster.*
Dean, Charles, Edward,	*Madison.*
Doty, Harry W.,	*Madison.*
Harker, John James,	*Linden.*
Hart, Harry,	*Humbird.*
Hayes, Mark Webster,	*Kaukauna.*
Jackson, William Malcolm,	*Marinette.*
Jelinek, Benjamin,	*Milwaukee.*
Jewett, Norman Lee,	*Sparta.*
Johnson, Hugh Christian,	*Sheridan.*
Juergens, Henry Lewis,	*Hartford.*
McConnell, Charles Fremont,	*Darlington.*
McNulty, James Bernard,	*Avoca.*
Meyer, Alfred Henry,	*Cedarburg.*
Moll, John Edwin,	*Madison.*
Morrison, Frank Barron,	*Marshfield.*
Post, Robert Lewis,	*Madison.*
Richards, Griffith, Jr.,	*Racine.*
Sanders, Raymond Young,	*Chicago, Ill.*
Schoenmann, LeRoy Adolph,	*Spring Green.*
Shuff, Charles Boynton,	*New Berlin, Ill.*
Smiley, Robert Flint,	*Albany.*
Smith, Harvey George,	*Brandon.*
Tribe, William Fred,	*Milwaukee.*
Ullsperger, Herman Wenzl,	*Algoma.*
Wallin, Thomas Gale,	*Eastman.*
White, Hubert Draper,	*Oak Park, Ill.*

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ADULT SPECIALS

Baxter, Emma Frances,	*Boston, Mass.*
Benkendorf, Gustav Henry,	*Madison.*
Boyd, Merritt Edwin,	*Madison.*
Doerschuk, John James,	*Shanesville, O.*
Dow, George Litch,	*Madison.*
Hazlet, Charles Cook,	*Franklin, Pa.*
Johnson, Edwin Nye,	*Aurora, Ill.*
Lamson, Robert John,	*Toledo, O.*
Lathrop, Homer Newton,	*Sherburne, N. Y.*
Lund, Thomas Herbert,	*Chorley, Eng.*

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Morrissey, Lawrence William,	*Reedsville.*
Peterson, Bennie Arthur,	*Madison.*
Teckmeyer, George Edward,	*Madison.*
Thompson, Albert Ludvig,	*Madison.*
Thuerwachter, Louis Henry,	*Calumetville.*
Weir, Wilbert Walter,	*Mukwonago.*

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SHORT COURSE—SECOND YEAR

Ahlers, Walter Charles,	*Grafton.*
Anthony, David C.,	*Oregon.*
Baker, Dwight,	*Blanchardville.*
Barton, Otto Melvin,	*Mt. Horeb.*
Basse, William Henry,	*Milwaukee.*
Berger, John H.,	*Oshkosh.*
Beyer, Herman Henry Charles,	*Peebles.*
Bigelow, Raymond David,	*Dorchester.*
Blotz, Elmer,	*Dodgeville.*
Bohl, Joseph N.,	*Beaver Dam.*
Booth, Guy Albert,	*Cuba City.*
Boucsein, Ernie Fred,	*Detroit Harbor.*
Bradley, Joseph Franklin,	*Somers.*
Bremer, Paul Henry,	*Milwaukee.*
Bruhn, John Fred,	*Two Rivers.*
Buss, William George,	*Belmont.*
Bussewitz, Orla J.,	*Lowell.*
Caygill, Fred Medcalf,	*Linden.*
Cherveny, Wenzel,	*Kewaunee.*
Christensen, Peter Waldman,	*Marshfield.*
Church, Arthur Potter,	*Whitewater.*
Clavadatscher, Tobias,	*Sauk City.*
Coldwell, John,	*Mazomanie.*
Cooke, Carl Hubert,	*Independence.*
Dalton, Roy E.,	*Pardeeville.*
Day, James,	*Oakfield.*
Dennerlein, Arthur John,	*Plymouth.*
Degman, Fred Herman,	*Wauwatosa.*
Dunbar, Harold,	*River Falls.*
Empey, George Albert,	*Dorchester.*
Ericksen, Louis Edmund,	*Kewaunee.*
Farwell, Roy Rundell,	*Ridgeway.*

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Finstad, Jalmer B.,	*Bloomer.*
Foley, Robert Emmett,	*Wauwatosa.*
Frederickson, Fred,	*Spring Green.*
Fruit, Bert Lawrence,	*Platteville.*
Gallagher, John Francis,	*Reedsburg.*
Gelbach, Parke Roesch,	*Lancaster.*
Gordon, Archie Lea,	*Mineral Point.*
Grove, Christian,	*Columbus.*
Grover, A. G. L.,	*Milwaukee.*
Haines, Joseph Kaighn,	*Mt. Ephram, N. J.*
Hansen, Helmer Christian,	*Scandinavia.*
Harris, William Morgan,	*Madison.*
Heyroth, Louis Henry,	*Mishicott.*
Hirsch, Brynjolf,	*Washburn.*
Holloway, John William,	*Union Grove.*
Howard, George A.,	*Ft. Atkinson.*
Jacklin, Ben Henry,	*Redgranite.*
Jacklin, Harley Milvern,	*Redgranite.*
Jacky, Gilbert George,	*Malone.*
Jacobs, Albert Franklin,	*Coloma Station.*
Jacot, Oscar Scott,	*Eleva.*
Jens, Otta A.,	*Waukesha.*
Jessup, Curtis Louis,	*Edgerton.*
Joice, George Edward,	*Waterloo.*
Jones, Owen R., Jr.,	*Beaver Dam.*
Keeney, Emerson R.,	*Rockton.*
Keogh, Harry Patrick,	*Forestville.*
Kircher, Herbert William,	*Chilton.*
Klofanda, Reuben,	*Racine.*
Kneser, John Henry,	*Milwaukee.*
Knocke, Edward August,	*Shiocton.*
Kramer, John C.,	*Montfort.*
Kronholm, Victor Emanuel,	*Grand Rapids.*
Kruse, William,	*Whitewater.*
Kurtze, Otto C. W.,	*West Allis.*
Leith, Benjamin Donald,	*Van Dyne.*
Leonard, Michael Joseph,	*Plymouth.*
Lund, Edwin,	*Bloomer.*
Marston, Albert,	*Beloit.*
Maug, Arthur John,	*Ripon.*
Michels, Henry,	*Malone.*

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Moen, Herman Cornelius,	*Cambridge.*
Moore, Harry,	*McFarland.*
Muth, Egbert,	*Sheboygan.*
Nelson, Edwin,	*Viroqua.*
Nelson, Martin,	*Milton.*
Nicholls, Harry George,	*Stoughton.*
Nyre, Lawrence Alvin,	*Mondovi.*
Oliver, James Henry,	*Galesville.*
Osborne, John Fairfield,	*Linden.*
Paulson, Hilbert Elmer,	*Hollandale.*
Peck, Spalding,	*Oconomowoc.*
Pederson, Peter,	*Eleva.*
Peik, Arthur Carl,	*Chilton.*
Peik, Edmund Henry,	*Chilton.*
Peterka, Joseph Jerome,	*Racine.*
Peterson, Arna Julieus,	*Bristol.*
Peterson, William,	*Curtiss.*
Port, Mike,	*Grafton.*
Pritchard, John Thomas,	*Waukesha.*
Raymer, Ethel Frances,	*Madison.*
Reynolds, Sidney F.,	*Jacksonport.*
Roberts, Thomas John,	*Wales.*
Runde, Martin Clemens,	*Cuba City.*
Rundell, Joseph Earl,	*Rewey.*
Rundell, Wilbur Mansfield,	*Livingston.*
Schaefer, Henry George,	*Plymouth.*
Scheid, Byron J.,	*Bay City.*
Schlapman, Fred Wm.,	*Milwaukee.*
Scholtz, George,	*Turtle Lake.*
Schmit, Alois E.,	*Hortonville.*
Schmit, Aloysius Wenzel,	*Appleton.*
Schulte, William Leo,	*Garnavillo, Ia.*
Schultz, Walter Wm.,	*Neillsville.*
Sharpee, Johanes,	*Rio.*
Sievers, George,	*Milwaukee.*
Smith, John Francis,	*Darlington.*
Solverson, Peter Oscar,	*Viroqua.*
Spaulding, Leslie Coleman,	*Brooklyn.*
Strowig, William Adam,	*Cleveland.*
Tenney, Horatio Augustus,	*Calamine.*
Thomas, Roy Edward,	*Dodgeville.*

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Thulin, Edwin,	*Hayward.*
Tice, Ray,	*Redgranite.*
Tomhagen, John Andrew,	*Chicago, Ill.*
Torgerson, Benjamin Sam,	*Cottage Grove.*
Usher, Earl,	*South Wayne.*
Van Blarcon, Edward,	*Spring Green.*
Vaughn, Dayle Winfield,	*Whitewater.*
Vosberg, Bernard Joe.	*East Dubuque, Ill.*
Woll, Floyd,	*Weyauwega.*
Wesson, Edwin Albert,	*Richmond, Ill.*
White, Harold Edgar,	*Milwaukee.*
Wichern, Carl W.,	*Baraboo.*
Wilhelmsen, Hartwich,	*Ixonia.*
Winge, William,	*Wautoma.*
Wulff, Fred Jr.,	*Grafton.*

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SHORT COURSE—FIRST YEAR

Abel, Emil,	*Cedarburg.*
Alberts, Will Herman,	*New Richmond.*
Alvarez, Jose Guadalupe,	*Coahuayula, Michuecan, Mex.*
Anderson, Alfred M.,	*Fontenoy.*
Anderson, William Alfred,	*Madison.*
Austin, Alva Gilman,	*Janesville.*
Backhaus, Franklin Gotlieb,	*Kewaskum.*
Bartlett, George Walter,	*Menomonee Falls.*
Bauer, Adolph Henry,	*Manitowoc.*
Beach, Glenn Horton,	*Loyal.*
Beilke, Walter,	*Fairwater.*
Berns, Xavier,	*Guttenberg, Ia.*
Bethke, Edmund,	*Milwaukee.*
Bonsack, T.,	*West Salem.*
Bosshard, Eugene,	*Bangor.*
Bowen, Charles Edward,	*Stoughton.*
Brehm, Eddie Arthur,	*Colby.*
Briggs, Lynn Wilson,	*Peebles.*
Brinker, Charles,	*St. Louis, Mo.*
Brunner, Robert William,	*Hudson.*
Bullamore, Russell Gray,	*Kenosha.*
Bumbalek, John L.,	*Milwaukee.*
Burgess, Arthur Joseph,	*Milwaukee.*

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Butterfield, Floyd Lester,	*Cobban.*
Caldo, Leslie,	*Janesville.*
Carey, James Elmer Leon,	*Red Granite.*
Chalfant, Aaron Huxley,	*Neenah.*
Chrislaw, George O.,	*Madison.*
Christ, Albert,	*Cambridge.*
Christensen, Johann,	*West Prairie.*
Christensen, John L.,	*Hartland.*
Christianson, Albert,	*Deerfield.*
Christianson, Harold,	*Deerfield.*
Claridge, Wallace E.,	*Spring Green.*
Cobleigh, Rollo Simon,	*Delton.*
Coleman, Charles Henry,	*Perry Center, N. Y.*
Cook, George L.,	*Burlington.*
Cooper, Maurice Wright,	*Edgerton.*
Costello, Dan Augustine,	*Hamilton.*
Daley, Julius C.,	*De Forest.*
Davies, David Evan,	*Waukesha.*
Dean, C. E.,	*Madison.*
Dopp, Paul B.,	*Oconomowoc.*
Durnford, George Albion,	*Rock Bridge.*
Dunklow, Walter Henry,	*Franksville.*
Edwards, William Harlan,	*Wales.*
Egre, John Samuel,	*Cambridge.*
Eisenman, Ben Frederick,	*Mishicot.*
Ellsworth, Raymond William,	*Tavera.*
Evensen, Frank,	*West Prairie.*
Everson, Henry,	*Whitehall.*
Feigum, John,	*Cottage Grove.*
Fenske, John,	*Fairwater.*
Ferris, Sherman,	*St. Croix Falls.*
Gasser, Roy,	*Prairie du Sac.*
Gaum, Henry,	*Fuerth, Bavaria, Ger.*
George, William R.,	*Sterling, Ill.*
Giebel, Karl August,	*Fond du Lac.*
Grass, Anthony Victor,	*Burlington.*
Gray, Howard Knox,	*Milton, Mass.*
Green, Carl M.,	*Prentice.*
Grenzow, Jesse Henry,	*Juda.*
Gridley, Benj. Fisher,	*Wauwatosa.*
Groth, Chas. A.,	*Cedarburg.*

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Guenther, Nelson Wm.,	*South Milwaukee.*
Gustaveson, Chas. Christian,	*Manitowoc.*
Guttemberg, Frank, Jr.,	*Jefferson.*
Halley, Guy Reith,	*Rockford, Ill.*
Hanifin, Leo Wm.,	*Grand Rapids.*
Hansen, Carl Ferdinand,	*Sparta.*
Hansen, Harry,	*Camp Douglas.*
Hanson, Harry Edward,	*Appleton.*
Harper, Hugh Allen,	*Madison.*
Harris, Raymond Franklin,	*Delavan.*
Hart, Wm. Chas.,	*Brookfield.*
Hatch, Orin Eugene,	*Oakfield.*
Hauck, Nathan,	*Alton, Cal.*
Hawkins, Arthur Benj.,	*Farley, Ia.*
Heasty, Ralph Wilson,	*Sparta.*
Hecketsweiler, Oscar Julius,	*Alma Center.*
Hedlund, Adolph,	*Clayton.*
Hemingway, Geo. Lewis,	*Hanover.*
Hendricks, John Henry,	*Campbellsport.*
Hensel, Claire Lamont,	*Walnut, Ill.*
Hermann, Fred Frank,	*Osseo.*
Herrbold, Jacob W.,	*Sturgeon Bay.*
Herwig, Theo. Aarnest,	*Delton.*
Highbarger, Howard David,	*Seward, Ill.*
Hill, John Thos.,	*Brookfield.*
Hinricks, Ernest,	*Reedsburg.*
Hintz, Wm. Ferdinand,	*Oakfield.*
Hitchcock, Clarence Edwin,	*Sparta.*
Hocks, Walter,	*Institute.*
Hoefner, Herbert Fred,	*Manitowoc.*
Hoeft, Chas. Albert,	*Oshkosh.*
Hoffman, Herman Fred,	*Portage.*
Holzhuter, Walter Edward,	*Marshall.*
Howe, John Oliver,	*Comstock.*
Hoxsey, Edward H.,	*Serena, Ill.*
Hoxsey, Frank,	*Serena, Ill.*
Huser, Henry,	*Grand Rapids.*
Hutchinson, Wm. David,	*Rubicon.*
Ingold, John, Jr.,	*Monroe.*
Ives, Lovell, Wm.,	*Rubicon.*
James, Geo. Albin,	*Richland Center.*

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Jamison, Clarence,	*Appleton.*
Jenson, William,	*Waupaca.*
Jerdee, Alfred O.,	*Deer Park.*
Jerdee, Perry Sanford,	*Deronda.*
Joyce, Karron,	*Red Granite.*
Juergens, Henry Lewis,	*Hartford.*
Kamrath, Wm.,	*Cameron.*
Kastein, Herman,	*Waupun.*
Kendell, Geo. Wm.,	*Sun Prairie.*
Ketterer, Ralph G.,	*Werley.*
Keuler, Aaron Fred,	*Helenville.*
Kinstler, Clarence,	*Washburn.*
Hjelland, Christian,	*Viroqua.*
Klein, Walter Cleveland,	*Orfordville.*
Knuteson, Ernest L.,	*Wautoma.*
Kocmich, Edward,	*Kewaunee.*
Koenecke, Edward H.,	*Reedsburg.*
Kraft, Albert,	*Kendall.*
Krause, Fred,	*Thorpe.*
Kruschke, George H.,	*New Richmond.*
Kuen, Clarence Edward,	*Brownsville.*
Kundert, William,	*Monroe.*
Landt, Newton,	*Kilbourn.*
Lawson, Robert John,	*Toledo, O.*
Lee, Peter Adolph Gerhard,	*Deerfield.*
Lefeber, Wilbur Fisk,	*Wauwatosa.*
Lein, Peter Andrew,	*Stanley.*
Lensing, August,	*Deer Brook.*
Leonard, William Richard,	*Fort Atkinson.*
Lewis, Lester M.,	*Monticello.*
Lewis, Lloyd,	*Stevens Point.*
Luetscher, Irvin,	*Prairie du Sac.*
McCaig, Ernest,	*Huntington, Can.*
McCarthy, George,	*Fredonia.*
McDowell, David Phillip,	*Packwaukee.*
McArthur, Gilbert Spruell,	*Madison.*
Mack, Warren L.,	*Whitewater.*
Matthys, Walter Nickles,	*Barron.*
Mau, Herman Gustav,	*Brodhead.*
Mayo, John Harold,	*Eau Claire.*
Meacham, Condon W.,	*Downing*

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Merriam, Ned Alvin,	*Lake Geneva.*
Messner, Edwin F.,	*Oakfield.*
Meyer, Alfred,	*Oakwood.*
Meyer, John Valantine,	*Sheboygan.*
Miller, George C.,	*Milwaukee.*
Miller, John,	*Oconomowoc.*
Mills Stanley,	*New Auburn.*
Mistele, William,	*Kendall.*
Mitchell, Dean Stanley,	*Brookfield.*
Moore, Henry G.,	*Mauston.*
Morgan, Mary Parker,	*Madison.*
Morris, Leslie David,	*Waukesha.*
Morrissey, Lawrence,	*Reedsville.*
Mueller, Mathias John,	*Bristol.*
Murphy, Laurence F.,	*Hartford.*
Nagle, Lee,	*Patch Grove.*
Nau, Ray Herbert,	*Caledonia.*
Nelson, Emil,	*River Falls.*
Nelson, James J.,	*Camp Douglas.*
Ness, Andrew,	*Madison.*
Neuberger, William T.,	*Reesville.*
Nickerson, Lester R.,	*Prairie du Chien.*
Norrbom, Carl Gustaf,	*Eland.*
Nordlie, Alfred,	*Deerfield.*
Oestreich, Louis John,	*Kewaunee.*
Ogden, George Fenton,	*Madison.*
Ohern, Martin,	*Sturgeon Bay.*
Olsen, Nordahl,	*Westby.*
Neprud, Nels Oscar,	*La Crosse.*
Otterholt, Henry,	*Chetek,*
Owen, David,	*Waukesha.*
Owen, Thomas Morgan,	*Portage,*
Parrish, Ralph I.,	*Shebyonan Falls,*
Peebles, Clarence Ezra,	*Peebles*
Peebles, John,	*Oconomowoc.*
Peppers, Gale,	*Beloit.*
Persen, Alfred,	*Bryant.*
Peters, John Joachim,	*Mukwonago.*
Peterson, John H.,	*Cashton.*
Petrie, Merton Ellery,	*Elkhorn,*
Pierce, Henry Elston,	*Milton Jct.,*

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Poole, Earle Byron,	*Twin Bluffs.*
Poulter, Chas. Wm.,	*Cumberland.*
Powell, Wm. Myleys,	*Milwaukee.*
Preston, Wm. N.,	*Juda.*
Price, Arthur J.,	*Bristol.*
Price, Fred T.,	*Bristol.*
Pritzl, John Anton,	*Manitowoc.*
*Purdie, Maxwell M.,	*Oak Park, Ill.*
Raferty, Agnes,	*Windsor.*
Raichle, Carl,	*Galesville.*
Rather, Armand,	*Peebles.*
Rather, Walter A.,	*Fountain City.*
Rauchenstein, John,	*Rice Lake.*
Reinheimer, Wm. Jr.,	*Spencer,*
Rheingans, Walter K.,	*Chippewa Falls.*
Rhiner, Albert,	*Riley.*
Richards, Wm. Leonard,	*Columbus,*
Richardson, Thos. C. L. P.,	*Evansville.*
Rietz, Geo. Lawrence,	*Athens.*
Ritland, Carl,	*Elroy.*
Robers, Wm. John,	*Burlington.*
Roderick, Lee M.,	*Juda.*
Rodewald, Walter Carl,	*Baraboo.*
Rodger, Ray,	*Endeavor.*
Rolfson, Clarence Eugene,	*Waterford.*
Root, Alvin Will,	*Fond du Lac.*
Schmit, Albert,	*Appleton.*
Schneider, Gottlieb Philip,	*Keyser.*
Scholz, Arthur,	*Watertown.*
Schultz, Edwin Wm.,	*Brownsville.*
Schwantes, Edward Ferd.,	*Kewaunee.*
Sebion, Cornelius,	*Westby.*
Sias, Benj. Chas.,	*Sparta.*
Sims, Orley Frank,	*Melrose.*
Singer, Henry,	*Chicago, Ill.*
Slocomb, Chas. H.,	*Loyal.*
Smith, Edward Penn,	*Hancock.*
Smith, Jesse Elihu,	*Loyal.*
Smith, Sam Amory,	*Oakfield.*

*Died January 11, 1908.

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Smithback, Marvin E.,	*Cambridge.*
Spangrud, Clarence,	*Independence.*
Stevens, Ernest Almond,	*Eau Galle.*
Stewart, Blaine Garfield,	*Antigo.*
Stewart, Joe H.,	*Wales.*
Sutton, Elwin George,	*Augusta.*
Swerig, Carl,	*Stoughton.*
Thompson, Adolph,	*Black River Falls.*
Uhlin, Albin,	*Clayton.*
Unger, Edward Fred,	*Milwaukee.*
Van Curen, Paul,	*Knapp.*
Van Seggern, Fred,	*Denmark.*
Veium, Tollef,	*Stoughton.*
Voigt, Alwin Henry,	*Oconomowoc.*
Wagner, Arthur Louis,	*Haven.*
Wagner, Geo. R.,	*Stevens Point.*
Wallace, Harrison M.,	*Norwalk.*
Wallington, Thos.,	*Phoenix, B. C., Can.*
Werner, W. A.,	*Lake Mills.*
Warzynakoski, Arthur Frank	*Oakwood.*
Webster, Ralph Chester,	*Columbus.*
Wehrwein, Walter,	*Manitowoc.*
Weifenbach, Fred,	*Kaukauna.*
Wellso, Walter Alfred,	*Oakfield.*
West, Wm. B.,	*Neillsville.*
Wieland, Chas. Geo.,	*Lancaster.*
Wigen, Walter,	*Manitowoc.*
Williams, Wm. S.,	*Dodgeville.*
Williams, Zenas,	*Genesee Depot.*
Wolzien, Carl, Jr.,	*Sturgeon Bay.*
Wood, Calvin Delford,	*Algoma.*
Worden, Edward L.,	*Watertown.*
Wunsch, Hugo Edward,	*Haven.*
Zabel, Henry Walter,	*Deerfield.*
Zillmer, Wm. C.,	*Brookfield.*

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DAIRY SCHOOL CLASS

Adriansen, Louis Joseph,	*De Pere.*
Altman, John Frank,	*Blenker.*
Bartz, Herman Ferd. Lewis,	*Suring.*

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Beck, George Emanuel,	*Linden.*
Beeckler, George Alexander,	*Granton.*
Bennin, Charles August,	*New Holstein.*
Best, Emil Christopher,	*Plymouth.*
Bidwell, Willis Edwin,	*Easton.*
Bocken, Sam Ludvic,	*Larsen.*
Boedeker, Arbey Arthus,	*Norwalk.*
Bonikowske, Louis Ferdant,	*Ogdensburg.*
Brunner, Michael Edward,	*Durand.*
Brask, Thowald Jensen,	*Withee.*
Butler, Lester Edwin,	*Eau Galle.*
Button, Guy Merrill,	*Melrose.*
Bymers, John Paul,	*Arpin.*
Chilsen, Knudt,	*Merrill.*
Christenson, Odin,	*Nelsonville.*
Combs, Frank William,	*Merrill.*
Cobb, Ernest Alfred,	*Sun Prairie.*
Derfus, John J.,	*Sherwood.*
De Zwarte, James,	*North Lake.*
Dickow, Richard C.,	*Cobb.*
Dillingham, Mark,	*Gilmanton.*
Dornstreich, Wm. Ferdinand,	*Greenleaf.*
Drab, Joseph Frank,	*Kewaunee.*
Dubois, Desire Leonard,	*Luxembourg.*
Dupont, Antoine,	*Luxembourg.*
Ebbens, Cornelius Arnold,	*Thorpe.*
Eberhardt, Henry John,	*Cedarburg.*
Elden, Anton Albert,	*Stevens Point.*
Eldridge, Edwin Neville,	*Independence, Ore.*
Farrand, John Jay,	*Lancaster.*
Farrell, Thomas Frances,	*Carneville, Ireland.*
Figved, Elias,	*Stavanger, Norway.*
Fillbach, Albert Oliver,	*Cobb.*
Frieders, Charles,	*Rozellville.*
Garlid, George,	*Ellsworth.*
Garness, John,	*Lodi.*
Gaulke, August Carl,	*Algoma.*
Gilbert, Wirt Philip,	*Montello.*
Goldbach, Joseph,	*Marathon.*
Goodman, Louis William,	*Cadott.*
Grashorn, Leo,	*Mayville.*

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Griep, William Richard,	*Horicon.*
Handy, Herman William,	*Bangor.*
Hass, Bernard Albert,	*Madison.*
Hayward, Charles Hammond,	*Wilton.*
Helmke, Edward Carl,	*Hamburg.*
Henderson, Homer Richard,	*Piqua.*
Henseler, Joseph,	*Marshfield.*
Hoffman, Arthur Frank,	*Stanley.*
Hoslet, Eli,	*Casco.*
Houdek, Frank John,	*Kewaunee.*
Hungerford, Earl Stephen,	*Hustler.*
Hussar, Emil George,	*Kellnersville.*
Jacobs, John Adam,	*Coloma Sta.*
Jaeger, John,	*Campbellsport.*
Jensen, Christian James,	*Withee.*
Johnson, Hans Albert,	*Wittenberg.*
Jossi, Abraham William,	*Manawa.*
Kawai, Mataroku,	*Osaka, Japan.*
Klosowski, Anton Joseph,	*Menominee.*
Knudson, Oscar,	*Spring Green.*
Korb, Paul Nick,	*Boyd.*
Koss, John Frank,	*Casco.*
Kregel, Louis Carl,	*Larsen.*
Kriewaldt, John Emil,	*Embarrass.*
Kubat, William Henry,	*Neillsville.*
Lau, F. Louis,	*Hartford.*
Lauber, John Rudolph,	*Menominee.*
Lea, Clement Francis,	*Plainfield.*
Lee, Vinton D.,	*Granton.*
Le Jeune, Joseph Francis,	*Rice Lake.*
Longteau, Earl France,	*West De Pere.*
Lorenz, Albert Charles,	*Manitowoc.*
Lowe, Charles,	*Wild Rose.*
Luethy, Hans Bruns,	*Reedsville.*
Lund, Alfred James,	*Grantsburg.*
Lutze, Oscar Christ,	*Cleveland.*
Marks, Ferdinand Frederick,	*Colby.*
Martin, Henry Charles,	*Oseola.*
Mattson, John E.,	*St. Croix Falls.*
Matsick, Joseph Albert,	*Carnot.*
Mayer, Otto Louis,	*Junction City.*

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McMamsers, Raymond Smith,	*Madison.*
McMullin, Roy Chester,	*Viroqua.*
Meisner, Franklin W.,	*Embarrass.*
Melendy, Guy Ernest,	*Sheboygan Falls.*
Mensch, Arthur,	*Fond du Lac.*
Meyers, Edwin August,	*Manitowoc.*
Miller, Henry,	*Peshtigo.*
Mollet, Peter John,	*Arpin.*
Montgomery, Ralph,	*Neillsville.*
Moore, Alexander S.,	*Pittsburg, Pa.*
Moser, Joseph,	*Brillion.*
Mundt, Herman Albert,	*Manawa.*
Nack, William August,	*Cleveland.*
Naumann, Henry Louis,	*Sawyer.*
Nehls, Louis Albert,	*Lake Beulah.*
Paplham, Frank W.,	*Kewaunee.*
Pasterski, Tony Hubert,	*Green Bay.*
Peterson, Oscar J.,	*Black River Falls.*
Peterson, Oscar Franklin,	*Nelsonville.*
Phillips, Floyd A.,	*Chilton.*
Pierce, Forest George,	*Eau Claire.*
Polecheck, Frank,	*Brussels.*
Quinn, Walter Peter,	*Seattle, Wash.*
Radandt, Joseph,	*Manitowoc.*
Radke, Rudolph Herman,	*Marion.*
Rank, Jacob Peter,	*Luxembourg.*
Ranney, Avery Lee,	*Hustler.*
Roch, Frank Joseph,	*Richwood.*
Rogers, Charles Hartford,	*Beetown.*
Root, Frank Sylvester,	*Neillsville.*
Ropella, Lara Charles,	*Amherst Jct.*
Ruebensaal, Fred William,	*Elroy.*
Schmelzer, Henry George,	*Sawyer.*
Schneider, Christ Rynhart,	*S. Germantown.*
Schneider, Louis Albert,	*Algoma.*
Schoen, Harry,	*Green Bay.*
Schlesselman,	*Fountain City.*
Schweitzer, Peter August,	*Allenton.*
Scott, Peter Magnus,	*New Auburn.*
Singler, Joseph John,	*Oconomowoc.*
Sonnabend, Theodore Charles,	*Collins.*

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Speich, Edward,	*Greenwood.*
Speich, John Henry,	*Oshkosh.*
Steger, August John,	*Theresa.*
Stollenwerk, Casper,	*Medford.*
Sullivan, Milton Rodell,	*Monroe.*
Thompson, Gjermund Richard,	*Colfax.*
Tomashek, Charles Joseph,	*Shawano.*
Towle, Timothy Benjamin,	*Litchfield, Conn.*
Vine, Clayton Irving,	*Neillsville.*
Vogt, Gerrie John,	*Fremont.*
Warner, George,	*Whitehall.*
Wendland, Henry,	*Merrill.*
Wetak, Joseph John,	*Sawyer.*
White, Fred Charles,	*Seneca.*
Woldt, Charles Frank,	*Bonduel.*
Wollerman, Charles Herman,	*Clinton Jct.*
Zentzius, Arthur John,	*Green Bay.*
Zutz, Charles Henry,	*Reedsville.*

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SUMMER SESSION OF 1907

GRADUATES

Aldrich, Loyal Blaine, *Milwaukee.*
B. A., University of Wisconsin, Mathematics, Physics.

Atwood, Walter Myron, *Madison.*
B. A., University of Wisconsin, History, Political Economy.

Aylsworth, Leon Emmons, *Lincoln, Neb.*
B. A., University of Nebraska, Political Science, Romance Languages.

Bailey, William Louis, *Gravenhurst, Ont., Can.*
M. A., Queens University, Political Science.

Baker, Joseph Henry, *Madison.*
B. A., University of Wisconsin, Mathematics, Physics, Drawing Shop.

Baker, Moses Haven, *Stockwell, Ind.*
B. S., Purdue University, Anatomy.

Bell, Willis James, *Allison, Ia.*
M. A., University of Wisconsin, German, Greek, Latin.

Belland, Lily, *Chicago, Ill.*
B. A., University of Chicago, History, Latin Romance Languages, Russian.

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Beman, Lamar Taney, *Cleveland, O.*
M. A., Ohio State University, Political Economy.

Benner, Raymond C., *Madison.*
M. A., University of Wisconsin, Chemistry.

Bisset, Charles, *Holton, Kan.*
B. A., Campbell College,
B. D., Union Biblical Seminary, History, Political Economy.

Bliss, Myrtle Rundlett, *Sharon.*
B. A., University of Wisconsin, Bontany, Physics.

Bookwalter, Carl Ferdinand, *Baltimore, Md*
B. S., Purdue University, Anatomy.

Brohough, Gustav O., *Madison.*
M. A., University of Wisconsin,
LL. B., University of Minnesota, History, Political Economy.

Butler, Ethan Flagg, *Washington, D. C.*
B. A., Princeton University, Anatomy.

Carmody, Helen Loretta, *Chicago, Ill.*
B. A., University of Chicago, History, Home Economics.

Cass, Lulu Edith, *Madison.*
B. A., University of Wisconsin, Mathematics, Public Speaking, Public School Music.

Cater, H. Louise, *Libertyville, Ill.*
B. A., Northwestern University, History.

Clarke, William Lowe, *Fayette, Mo.*
B. A., Vanderbilt University, History, Latin.

Comings, Mary Huntington, *Eau Claire.*
B. S., Northwestern University, Education, Philosophy.

Compton, James Stephen, *Eureka, Ill.*
B. A., Eureka College, Botany, Meteorology, Zoology.

Crew, Caroline Ladd, *Wilmington, Del.*
B. A., Smith College, German, Elocution.

Davis, Thomas Rich, *Dollar Bay, Mich.*
B. A. Olivet College, Education, Physics.

Deach, Ivan, *Peoria, Ill*
B. A., Leland Stanford University, Greek, Meteorology.

Dean, Charles Abratha, *Atlanta, Ga.*
B. S., Alabama Polytechnic Institute, Public Speaking, Mechanical Drawing.

Dean, Daisy, *St. Louis, Mo.*
B. A., University of Kansas, Latin, Physical Training, History, English.

Dearborn, Walter Fenno, *Madison.*
Ph. D., Columbia University, Anatomy.

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Denzer, Bernard Solomon, *New Rochelle, N. Y.*
B. A., Columbia University, Anatomy.

Devan, Thomas Alan, *New Brunswick, N. J.*
B. S., Rutgers College, Anatomy.

Donahue, Blanch, *Clear Lake, Ia.*
Ph. B., Hamline University, Botany, Zoology.

Dyrud, Mathilda, *Baraboo.*
B. A., University of Wisconsin, Home Economics.

Ellingson, Emil, *Northfield, Minn.*
B. S., St. Olaf College, Chemistry.

Engle, Ralph Landis, *Palmyra, Pa.*
M. A., Yale University, Anatomy.

Ernst. Adolphine Bianca, *Milwaukee.*
B. L., University of Wisconsin, German.

Erwine, Russell Hissey, *Zanesville, O.*
B. L. Ohio Wesleyan University, History.

Faust, Howard Harry, *Waupaca.*
B. A., University of Wisconsin, Public Speaking.

Finkbeiner, Thomas, *Naperville, Ill.*
Ph. M., Northwestern College, German.

Fisher, Martin Luther, *La Fayette, Ind.*
B. S. A., Purdue University, Chemistry, German, Political Economy.

Fitch, John Andrews, *Parker, S. D.*
B. A., Yankton College, History.

Flisch, Julia Anna, *Madison.*
Lucy Cobb Institute, History, Political Economy.

Ford, Amelia Clewley, *Searsport, Me.*
M. A., University of Wisconsin, German, History.

Freer, Louise, *Mt. Vernon, Ia.*
B. A., Cornell College, Anatomy, Physical Training.

Gaebler, Hans David, *Watertown.*
B. A., Northwestern University, (Watertown), Political Economy, Romance Languages.

Gillett, Arthur Dudley Samuel, *Superior.*
B. L., University of Wisconsin, Political Economy.

Ginsberg, Hyman, *De Funiak Springs, Fla.*
B. S., University of Georgia Anatomy.

Goad, Caroline, *Toronto, Can.*
M. A., University of Toronto, German.

Goldberger, Tibor de, *Budapest, Hungary.*
University of Berlin, Political Economy.

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Grossman, August,	***Madison.***
B. A., Harvard University,	Mathematics.
Hagberg, John Bernhard,	***Superior.***
Ph. B, University of Wisconsin,	Botany, Mathematics.
Halbach, Norma Catherine,	***Marinette.***
B. A., University of Wisconsin,	Botany, History.
Halsey, Cora Moore,	***Oshkosh.***
Ph. B., University of Wisconsin,	History, Political Economy.
Harding, Albert Spencer,	***Brookings, S. D.***
M. A., University of Nebraska,	History, Political Economy.
H'Doubler, Pearle Madeline,	***Madison.***
B. A., University of Wisconsin,	Latin.
Hegner, Robert Wilhelm,	***Chicago, Ill.***
M. S., University of Chicago,	Zoology.
Hein, Willard H.,	***Racine.***
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Bump, Ruth Adeline,	*Albany.*
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Bussewitz, Walter Richard,	*Juneau.*
Cape, Jane,	*Dodgeville.*
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Steendahl, Earl Leopold,	*Menomonie.*
Steinke, Laura Anna,	*Madison.*
Stier, John Phillip,	*Templeton.*
Storie, Agnes Groves,	*Lodi.*
Stout, Arlon Burdette,	*Baraboo.*
Suzuki, Ewazo,	*Kobe, Japan.*
Swenholt, John,	*Madison.*
Terry, Clara Jeannette,	*Madison.*
Thursby, Helen Gertrude,	*Madison.*
Tiefenthaler, Leo Frank,	*Milwaukee.*

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Tierney, John Thomas,	*Woodland.*
Tighe, Benjamin Bennett,	*Clinton.*
Titus, Martin Edwin,	*Wilton.*
Tombleson, Lloyd Francis,	*Ellsworth.*
Tower, Irving,	*Evanston, Ill.*
Tragsdorf, Clara Christine	*Neillsville.*
Trane, Jessie May,	*La Crosse.*
Trelevan, John Edward,	*Menomonie.*
Ulbricht, Lydia Agnes,	*Milwaukee.*
Upson, Dayton,	*Rockford, Ill.*
Valenzuela, José,	*Guagua, Pam., P. I.*
Van Auken, Clarice,	*Madison.*
Vantine, Lewis Ashley,	*Milwaukee.*
Vaughan, James Patrick,	*Eyota, Minn.*
Veerhusen, Vera,	*Madison.*
Wadleigh, Matthew Fletcher,	*Stevens Point.*
Wadleigh, Samuel Ellis,	*Stevens Point.*
Wahl, Harry Roswell,	*Stratford.*
Wakemann, Nellie Antoinette,	*Columbus.*
Wallin, Zenas Beach,	*Seneca.*
Walsh, Frances Marie,	*Milwaukee.*
Wegner, Arnold Adolph,	*Wausau.*
Wehrmann, Carl John,	*Madison.*
Welsh, Lucy,	*Milwaukee.*
Welsh, Mary Rose,	*Milwaukee.*
Wetter, Anna Albertine,	*Chicago, Ill.*
Wheelock, George R.,	*Peoria, Ill.*
Wheelock, Ralph Wadsworth,	*Peoria, Ill.*
Whitelaw, Mary Reid,	*Portage.*
Wieman, Emma Pauline,	*Colorado, City, Colo.*
Wightman, Nellie Maud,	*Richland Center.*
Wille, Louis William,	*Milwaukee.*
Williams, Anna Margaret,	*Cobb.*
Williams, Frank Ernest,	*Madison.*
Williams, Robert E.,	*Milwaukee.*
Wittich, Walter Julius,	*Milwaukee.*
Wood, Grace La Vergne,	*Brandon.*
Wright, Horace Wetherill,	*Madison.*
Yeakle, Juliet Vinton,	*Whitewater.*
Younggren, Russie Cornelius,	*River Falls.*
Zander, August William,	*Algoma.* —368

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SUMMER SESSION FOR APPRENTICES AND ARTISANS

Graduates

Biesgen, August, *Milwaukee.*
E. E., College of Engineering, (Mittweida, Germany).

McBean, John William, *Toronto, Can.*
B. A., University of Toronto, Engines and Boilers, Shop Work.

Stroebel, George William, *Schenectady, N. Y.*
B. S., Michigan Agricultural College, Applied Electricity.
—3

Undergraduates

Aitchison, William Hood,	*Esterville, Ia.*
Babcock, Nellie Elfreada,	*Mineral Point.*
Bachhausen, George John,	*Sheboygan.*
Barrows, Robert Clark,	*Kansas City, Mo.*
Beggs, George Thomas,	*Minneapolis, Minn.*
Bergseng, Oscar,	*River Falls.*
Beye, Cudworth,	*Oak Park, Ill.*
Blessing, John William,	*Fennimore.*
Bolus, Glenn Henry,	*Mansfield, O.*
Boylan, James Edward,	*Indianapolis, Ind.*
Braun, Rudolph,	*Milwaukee.*
Brittan, Joseph Harold,	*Beloit.*
Brugger, Fred,	*Lake City, Ia.*
Burnell, Ward Kingsley,	*Oberlin, O.*
Clingman, Earl Newton,	*Chicago, Ill.*
Daemmrich, Albert Oswald,	*Pittsville.*
Dodge, Paul Conde,	*Madison.*
Drescher, Otto Charles,	*Milwaukee.*
Dunphy, Albert Edward,	*Ellendale, N. D.*
Edsen, Eli,	*Beloit.*
Frasier, Claude Eugene,	*Hazel Green.*
Fults, Jesse Edwin,	*Thorp.*
Giebel, Walter Cleveland,	*Nelson.*
Gillette, Erving Ray,	*Racine.*
Gordon, Leslie Stuart,	*Chicago, Ill.*
Griswold, Earnest Carl,	*Thomson, Ill.*
Hallman, George Fredrick,	*Mankato, Minn.*
Harvey, Harold Vincent,	*Racine.*
Haskell, Clarence Comodore,	*St. Louis Park, Minn.*
Haskell, Sidney Cleveland,	*Coburg, Ont., Can.*

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Hawes, Fred C.,	*Templeton.*
Herrold, Herschel McKinley,	*Kansas City, Mo.*
Hitch, James Edgar,	*Cumberland.*
Holeton, George Richard,	*Dorchester.*
Kemp, William Bilton,	*Madison.*
Larsen, Albert Martin,	*St. Paul, Minn.*
Larson, Leonard,	*La Crosse.*
Law, Robert Melvin,	*Madison.*
Llamado, Francisco Pascual,	*Caridas, Cavite, P. I.*
Lokke, Julius Henry,	*Baldwin.*
Loomer, Clayton Joseph,	*Whitewater.*
Lord, Luther Albert,	*Belmond, Ia.*
Lupinski, Oswald,	*Milwaukee.*
Marshall, Emory Miller,	*Des Moines, Ia.*
Neumann, Adolph,	*Mayville.*
Patitz, George John,	*Chicago, Ill.*
Pengelly, Roy L.,	*Madison.*
Post, Herbert Lee,	*Black River Falls.*
Reed, Harold Bushnell,	*Cleveland, O.*
Ross, Thompson,	*Rensselaer, Ind.*
Ryder, Gana Gustavus,	*Fond du Lac.*
Sears, Louis Charles,	*Milwaukee.*
Sharpe, William Andrew,	*Elroy.*
Schaefer, John Fred,	*Kewaskum.*
Schoenwetter, Otto Charles,	*Juneau.*
Sherman, Myron Wood,	*Richland Center.*
Smith, Herbert James,	*Milwaukee.*
Smith, Royal Porter,	*Beloit.*
Sperle, Ella,	*McFarland.*
Storrs, Henry Baron,	*Lansing, Kan.*
Sun, Yu-Fong Louis,	*Shanghai, China.*
Tibbitts, Fayette Amos,	*Hingham.*
Urrutia, Fermin,	*La Plata, Arg. Rep.*
Uttley, Thomas Murphy,	*Phoenix, Ariz.*
Waite, John Harvard,	*Brooklyn.*
Wehausen, George Washington,	*Madison.*
Wetzel, William John,	*Madison.*
White, Evert Edward,	*Indianapolis, Ind.*
Whittaker, Elmer Horace,	*Fond du Lac.*
Wilder, Frank B.,	*Evansville.*
Wohlrab, Aloys H.,	*Milwaukee.*

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Woolhiser, Herbert Ludue,	*South Wayne.*
Zluticky, Joe,	*Beloit.*

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SUMMER DAIRY STUDENTS

Amdall, George Martin,	*Dallas.*
Booco, Abraham Smith,	*Jeffersonville, O.*
Born, Fred Wharton,	*Edgerton.*
Camerson, Duncan Angus,	*La Crosse.*
Cummiskey, William Michael,	*Newark, N. J.*
Girardet, James Julius,	*Ft. Collins, Colo.*
Kawai, Mataroku,	*Osaka, Japan.*
Larsen, Axel,	*Stanley.*
Moore, Alexander Smith,	*Pittsburg, Penn.*
Pischke, Edward John,	*Ripon.*
Thomas, John Lynn,	*College Station, Tex.*
Utsunomiya Sentaro,	*Sapporo Hokkaido, Japan.*
Wolff, Carl William,	*Milwaukee.*

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SUMMER SESSION FOR LAW STUDENTS

Adamson, Alfred Byron,	*Eldorado.*
Allen, David King, B. A.,	*Oshkosh.*
Baker, John Franklin, B. A.,	*Alma Center.*
Bartelt, Arthur Herman, B. A.,	*Fort Atkinson.*
Bashore, Ethelbert Joy, B. A.,	*Sheffield, Ill.*
Browne, George Howard,	*Chippewa Falls.*
Bullock, William L., B. S.,	*Madison.*
Dean, Archie Tabor,	*Eau Claire.*
Donnelly, Emmett Archybalde,	*Milwaukee.*
Evans, Newton W.,	*Madison.*
Geisse, Harold L.,	*Madison.*
Haberlin, William James,	*Courtenay, N. D.*
Hake, Walter Scott,	*Elroy.*
Hill, Carl Newell,	*Spring Green.*
Howitt, Harvey Mathew,	*Pewaukee.*
Jenswald, Franklin Ernest,	*Baraboo.*
Lambeck, Arthur Hugo, B. A.,	*Milwaukee.*
Levy, Bertram,	*New York, N. Y.*
McComb, Archie,	*Milton.*
Miller, William W., B. A.,	*Saratoga, Wyo.*
Miltimore, Max,	*Janesville.*

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Morton, James Duncan,	*Madison.*
Murphy, James Roach,	*Chippewa Falls.*
Philp, Leonard Hacker,	*Polo, Ill.*
Rademaker, Oscar,	*Pullman, Ill.*
Riley, Miles Charles,	*Milwaukee.*
Roberts, John Archibald,	*Columbus.*
Rogers, Selden Wallace,	*Portage.*
Rundell, Oliver Samuel,	*Livingston.*
Thomas, Mary Ella, B. A.,	*Madison.*
Twesme, Albert Theodore, B. A.,	*Madison.*
Wells, Earl Harold,	*Madison.*
Winslow, John Seymour,	*Madison.*
Wolters, Oscar Lambertus,	*Sheboygan.*
Woodruff, Wendell,	*Mondovi.*
Wright, Colin Wilson, Jr., B. A.,	*Monroe.*
Zollmann, Carl Frederich Gustav,	*Horicon.*

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SCHOOL OF MUSIC

Graduate

Aldrich, Loyal Blaine,	*Milwaukee.*
Anderson, Anna Louise,	*Madison.*
Blum, Emma Marie,	*Madison.*
Brand, Bessie Goodrich,	*Madison.*
Buehler, Elizabeth,	*Madison.*
Gilman, Flora Moseley,	*Madison.*
Norton, Sara Evelyn,	*Poynette.*
Renk, Mary Katherine,	*Sun Prairie.*
Theobald, Almina Mae,	*Madison.*
Waterman, Justine Anna May,	*Madison.*
Webber, Jessie Myrtle,	*Abilene, Kas.*

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Collegiate IV.

Alford, Hazel Viola,	*Madison.*
Churchill, Ethel Elizabeth,	*Monroe.*
Fairchild, Laura,	*Madison.*
Farnum, Isabel Monica,	*Madison.*
Fisher, Bertha Miriam,	*Madison.*
Forward, Abigail Lois,	*Berlin.*
Hall, Mary Frances,	*Milwaukee.*
Morgan, Sarah,	*Madison.*
O'Grady, Elizabeth Cecelia,	*Madison.*

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Olson, Maybelle,	*Cambridge.*
Richmond Fannie Ruth,	*Morrison, Ia.*
Ross, Maybelle Emmeline,	*Belleville,.*
Rueth, Anna Petronilla,	*Sun Prairie.*
Starks, Lula May,	*Madison.*
Withey, Iola Harker,	*Madison.*

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Collegiate III.

Bewick, Mary Louise,	*Nevada, Mo.*
Byrne, Agnes,	*Madison.*
Chynoweth, Emily Ellen,	*Madison.*
Coon, Winifred Pansy,	*Edgerton.*
Hudson, Josophine,	*Lancaster.*
Jonasen, Lillie Concordia,	*San Francisco, Cal.*
Klinefelter, Barbara Hazel,	*Madison.*
Marquette, Mary Christina,	*Madison.*
McCoy, Mrs. Robert,	*Madison.*
Mills, Genevieve,	*Madison.*
Patterson, Zenia Marguerite,	*Cambridge.*
Ryan, Winifred Martha Ellen,	*Wausau.*
Stevens, Anna,	*Evansville.*
Taylor, Jennie Mabel,	*Madison.*
Vantine, Lewis A.,	*Milwaukee.*
Volkman, Alice May,	*Louisville, Ky.*
Wyman, Ella Mary,	*Viroqua.*

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Collegiate II.

Baker, Sarah Alice,	*Eagle.*
Birge, Raymond Thayer,	*Troy, N. Y.*
Borgman, Vera,	*Kewaunee.*
Boyce, Mellie Antoinette,	*Madison.*
Brown, Florence Mary,	*Spring Green.*
Churchill, Charlotte Amelia,	*Monroe.*
Chynoweth, Edna,	*Madison.*
Confer, Edna Lorene,	*Madison.*
Eastman, Miriam Elizabeth,	*Plymouth.*
Grover, Alice Mary,	*Madison.*
Harrison, Edna Lucretia,	*Madison.*
Holty, Martin Noel,	*Madison.*
Jamieson, Mary,	*Poynette.*
Krause, Lenore,	*Yankton, S. D.*

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Mallett, Charlotte Ballese,	*Madison.*
McMillen, Florence Edythe,	*Ft. Atkinson.*
Nelson, Adeline Rebecca,	*Madison.*
Rankin, Edward Ira,	*Ft. Atkinson.*
Schubring, Mrs. E. J. B.,	*Madison.*
Shapiro, Estelle,	*Medford.*
Sanders, Belinda,	*Madison.*
Thode, Louise Christine,	*Dexter, N. M.*
Titzlaff, Bessie,	*Madison.*
Toepfer, Selma,	*Madison.*
Weaver, Paul J.,	*Madison.*
Williams, Mabel Elizabeth,	*Cobb.*
Wohlenberg, Erma Louise,	*Holstein, Ia.*
Zimmerman, Mrs. Nell,	*Madison.*

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Collegiate I.

Anderson, Florence,	*Madison.*
Babcock, Hazel,	*Kasota, Minn.*
Barnes, Dorothy Mary,	*Madison.*
Barnes, Volney Goodrich,	*Madison.*
Bewick, Grace Beatrice,	*Madison.*
Blee, Gerald Joseph,	*Sandwich, Ill.*
Blee, Gladys E.,	*Sandwich, Ill.*
Blum, Leo Englebert,	*Madison.*
Boettge, Cornelia Louise,	*Berlin.*
Brandel, Harry McPherson,	*Ft. Atkinson.*
Charlton, Fannie,	*Madison.*
Chrisler, Lola Vee,	*Lodi.*
Cleary, Frances Ada,	*Platteville.*
Cooley, Ida,	*Madison.*
Dahle, Gertrude Agnes,	*Sun Prairie.*
Douglas, Edward Milton,	*Camlachie, Ont., Can.*
Eggner, Mathilda E.,	*Marinette.*
Elvis, Emma Margaret,	*Medford.*
Fehlandt, Elsie Louise,	*Madison.*
Foley, May Ellen,	*Manson, Ia.*
Garver, James Russell,	*Abilene, Kas.*
Gilmore, Blanche,	*Madison.*
Hall, Margaret Spencer,	*Madison.*
Hayes, Mae Estelle,	*Janesville.*
Hendrickson, Olive Rosetta,	*Darlington.*

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Herfurth, Sabina Mildred,	*Madison.*
Hickman, Arthur,	*Madison.*
Howson, Louis Richard,	*Madison.*
Hughes, Mae Josephine,	*Milwaukee.*
Immell, Lois Constance,	*Denver, Colo.*
Johnson, Olga Bergetta,	*Stoughton.*
Kasiska, Mabel Josephine,	*Baraboo.*
Kennedy, Lilian Theresa,	*Madison.*
Kleiner, Ida Louise,	*Eau Claire.*
Lehmann, Frances Esther,	*Woodland.*
Lindas, Carrie Henrietta,	*Marshall.*
Lintner, Pauline Sophia,	*Arlington.*
Manhart, Clarence Eugene,	*Hillsboro.*
Martens, Elsie Augusta,	*Davenport, Ia.*
Mathieson, Lydia A.,	*Portage.*
Makeever, Jessie,	*Rensselar, Ind.*
Mercer, Myrtel Isabel,	*Sandwich, Ill.*
Meuer, Alma Helen,	*Madison.*
Millard, Celina Ulrica,	*Madison.*
Moe, Josephine Margretta,	*Pensaukee.*
Montgomery, Alice Norris,	*Madison.*
Morris, George Charles,	*Madison.*
Munson, Hope,	*Viroqua.*
Murphy, Pauline,	*Evanston, Ill.*
Myrland, Ellen,	*Madison.*
Nadeau, Oscar Eugene,	*Marinette.*
Ofstie, Esther Charlotte,	*Eau Claire.*
Olson, Mabel,	*Wyanet, Ill.*
Park, Gladys,	*Stevens Point.*
Pengelly, Ruby Viola,	*Madison.*
Polley, Grace Irma,	*Madison.*
Ridgway, Grace Gladys,	*Madison.*
Rood, Grace,	*Madison.*
Schnetz, Irna Myrtle,	*Verona.*
Simons, Dora M.,	*Shawano.*
Simons, Richard Wharton,	*Chicago, Ill.*
Smith, Buehlah Evelyn,	*Ashland.*
Spilde, Edna Lovisa,	*Lodi.*
Steere, Meta Elizabeth,	*Sparta.*
Stephens, Elinor,	*Chicago, Ill.*
Swan, Helga Louise,	*Stoughton.*

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Swenson, Edna Grace,	*Madison.*
Thrasher, Ellen Sarah,	*Kewanee, Ill.*
Trousdale, Elizabeth Dale,	*Madison.*
Vaughan, Lulu,	*Wauzeka.*
Waterman, Lucile Byrne,	*Superior.*
Weaver, Paul J.,	*Madison.*
Wehausen, Edna Grace,	*Madison.*
Whitson, Amy Ellen,	*Tomahawk.*
Wiley, Donald Francis,	*Peoria, Ill.*
Wilson, Irene,	*Los Angeles, Cal.*
Wright, Inez Gertrude,	*Green Bay.*
Wright, Molly Florence,	*Madison.*
Wulfing, Alice Constance,	*Madison.*

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SUMMARY OF STUDENTS

GRADUATE SCHOOL—232

Fellows	18
Scholars	18
Other Graduate Students	196

COLLEGE OF LETTERS AND SCIENCE—1762

Graduate Students	203
Senior Class	281
Junior Class	339
Sophomore Class	330
Freshman Class	507
Adult Special Students	78
Two-Year Pharmacy Students	24

Included in the above are the following:

Course in Commerce—219

Senior Class	27
Junior Class	43
Sophomore Class	59
Freshman Class	84
Adult Special Students	6

Course for Normal School Graduates—73.

Senior Class	25
Junior Class	48

Course in Pharmacy—32.

Four Years' Course.	Seniors	4
	Juniors	3
	Sophomore	1
Two Years' Course..	Second Year	14
	First Year	10

COLLEGE OF MEDICINE—

First Year	25

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COLLEGE OF ENGINEERING—921.

Graduate Students		15
Senior Class—139.		
Civil Engineering Course		51
Mechanical Engineering Course		22
Electrical Engineering Course		43
General Engineering Course		16
Chemical Engineering Course		7
Junior Class—186.		
Civil Engineering Course		69
Mechanical Engineering Course		25
Electrical Engineering Course		61
General Engineering Course		25
Chemical Engineering Course		6
Sophomore Class—220.		
Civil Engineering Course		86
Mechanical Engineering Course		26
Electrical Engineering Course		70
General Engineering Course		28
Chemical Engineering Course		10
Freshman Class		318
Adult Special Students		43

COLLEGE OF AGRICULTURE—694.

Graduate Students			14
Long Course	Seniors	31	
	Juniors	36	
	Sophomores	26	
	Freshmen	37	
	Adult Special Students	16	146
Short Course	Second Year	129	
	First Year	261	390
Dairy Course			144

COLLEGE OF LAW—157.

Senior Class	34
Middle Class	55

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Junior Class		25
Seniors in Letters and Science Electing Law Studies		24
Unclassified Students		19

SCHOOL OF MUSIC—150.

Collegiate	Graduate Students	11	
	Fourth Year	15	
	Third Year	17	
	Second Year	28	
	First Year	79	150
Deduct students enrolled in other colleges		73	77

SUMMER SESSION OF 1907.

Letters and Science—		
Graduate Students	167	
Undergraduates and teachers	368	
College of Law	37	
Apprentices and Artisans—		
Graduate Students	3	
Undergraduates and teachers	73	
Dairy School	13	661
Deduct students now attending the University	233	428
Total number of students		4039
Twice enumerated 26, leaving as actual number		4013

In the enumeration of adult special students above, the classification by courses is as follows: Letters and Science, fourth year 4; third year 7; second year 14; first year 53; Civil Engineering, third year, 3; second year 3; Mechanical Engineering, third year 1; second year 5; Electrical Engineering, fourth year, 1; third year 1; second year 2; General Engineering, second year 2; Chemical Engineering, third year 1; first year students in Engineering 24.

NOTE: In the School of Music the above enumeration does not include the students classified as academic. Of these there are 203 for the current year.

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APPENDIX

CHECK LIST OF PUBLICATIONS

BULLETIN OF THE UNIVERSITY OF WISCONSIN

The Bulletin of the University of Wisconsin is published bimonthly at Madison. For postal purposes, all issues in all series of the Bulletin are included in one consecutive numbering as published, a numbering which has no relation whatsoever to the arrangement in series and volumes.

Under the heading General series are included the annual University catalogue, announcements of the various colleges and courses of the University, etc. The numbers in the General series are of varying size and are not designed to form volumes with title-pages and indexes. To date, the following serial numbers of the Bulletin are issues in the General series, viz., Nos. 24, 27, 29, 34, 35, 37, 44-46, 48, 52, 53, 56-61, 64-77, 80-82, 84-95, 97, 98, 104, 105, 107, 109-114, 116-118, 120-137, 139-141, 144, 146-147, 150-156, 159-162, 164-172, 186-187, 200, 202, 203, 206, 212, 213.

The Economics and Political Science series, the History series, the Philology and Literature series, the Science series, the Engineering series and the University Extension series contain original papers by persons connected with the University. The series formerly issued as the Economics, Political Science, and History series was discontinued with the completion of the second volume, and has been replaced by the Economics and Political Science series and the History series.

The Committee of Publication of the six above-mentioned series consists of:

WALTER M. SMITH, *Chairman.*
WILLARD G. BLEYER, *Secretary.*
FREDERICK W. MACKENZIE, *Editor.*
THOMAS S. ADAMS, *Economics and Political Science Series*
WILLIAM L. LIGHTY, *University Extension Series.*
WILLIAM S. MARSHALL, *Science Series.*

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DANIEL W. MEAD, *Engineering Series.*
EDWARD T. OWEN, *Philology and Literature Series.*
FREDERICK J. TURNER, *History Series.*

A. Economics, Political Science, and History Series

VOLUME I

(Complete in three numbers, with title-page, table of contents, and index.)

No. 1. The geographical distribution of the vote of the thirteen states on the Federal Constitution, 1787-8, by Orin Grant Libby. 1894. 8+116 p. 2 pl. 75 cents. *Out of print.*

No. 2. The finances of the United States, from 1775 to 1789, with especial reference to the budget, by Charles Jesse Bullock. 1895. 8+158 p. 75 cents.

No. 3. The province of Quebec and the early American revolution. A study in English-American colonial history, by Victor Coffin. 1896. 17+288 p. 75 cents.

VOLUME II

(Complete in four numbers, with title-page, table of contents, and index.)

No. 1. New governments west of the Alleghanies before 1780, by George Henry Alden. 1897. 7+74 p. 50 cents.

No. 2. Municipal history and present organization of the city of Chicago, by Samuel Edwin Sparling. 1898. 188 p. 75 cents.

No. 3. Congressional grants of land in aid of railways, by John Bell Sanborn. 1899. 130 p. 50 cents.

No. 4. English common law in the early American colonies, by Paul Samuel Reinsch. 1899. 64 p. 50 cents.

B. Economics and Political Science Series

VOLUME I

(Complete in three numbers, with title-page and table of contents.)

No. 1. The decline of landowning farmers in England, by Henry Charles Taylor. 1904. 66 p. 25 cents.

No. 2. History of agriculture in Dane County, Wisconsin, by Benjamin Horace Hibbard. 1904. 148 p. 75 cents.

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No. 3. A history of the Northern Securities case, by Balthasar Henry Meyer. 1906. 136 p. 60 cents.

VOLUME II

(Complete in two numbers, with title-page and table of contents.)

No. 1. The labor contract from individual to collective bargaining, by Margaret Anna Schaffner. 1907. 182 p. 50 cents.

No. 2. The financial history of Wisconsin, by Raymond Vincent Phelan. 1908. 294 p. 50 cents.

VOLUME III

(Complete in two numbers, with title-page and table of contents.)

No. 1. The labor history of the Cripple Creek District, by Benjamin McKie Rastall. 1908. 166 p. 50 cents.

No. 2. A congressional history of railways in the United States to 1850, by Lewis Henry Haney. 1908. 274 p. 50 cents.

IN PREPARATION

The essential machinery of the central executive government of Wisconsin, 1836 to 1904, by James Duff Barnett.

Financial history of Kansas, by James Ernest Boyle.

Economic influences upon educational progress in the United States, 1820 to 1850, by Frank Tracy Carlton.

The extension of French laws to the colonies, by Henry Lorenzo Janes.

A financial and administrative history of Milwaukee, by Laurence Marcellus Larson.

C. History Series

VOLUME I

No. 1. The origin of the system of land grants for education, by Joseph Schafer. 1902. 54 p. 35 cents.

No. 2. The king's household in England before the Norman conquest, by Laurence Marcellus Larson. 1904. 158 p. 50 cents.

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No. 3. Lincoln's suspension of habeas corpus as viewed by Congress, by George Clarke Sellery. 1907. 74 p. 35 cents.

IN PREPARATION

Presidential elections in New York, by Carl Lotus Becker.
The settlement of Illinois from 1830 to 1850, by William Vipond Pooley.

D. Philology and Literature Series

VOLUME I

(Complete in four numbers, with title-page, table of contents, and index.)

No. 1. On the development of American literature from 1815 to 1833, by William B. Cairns. 1898. 4+88 p. 35 cents.
No. 2. The treatment of nature in the poetry of the Roman Republic, by Katherine Allen. 1899. 132 p. 50 cents.
No. 3. The Great Mother of the gods, by Grant Showerman. 1901. 114 p. 4 pl. 45 cents.
No. 4. Wortlehre des Adjectivs im Altsächsischen, by Edwin Carl Roedder. 1901. 82 p. 35 cents.

VOLUME II

(Complete in three numbers, with title-page, table of contents, and index.)

No. 1. The time elements of the Orestean trilogy, by Jonathan Bailey Browder. 1902. 76 p. 35 cents. *Out of print.*
No. 2. Schillers Einfluss auf Grillparzer, eine litterarhistorische Studie, by Otto Edward Lessing. 1902. 128 p. 50 cents.
No. 3. The philosophy of Ernest Renan, by Herman Gustav Adolph Brauer. 1903. 176 p. 50 cents. *Out of print.*

VOLUME III

(Complete in four numbers, with title-page and table of contents.)

No. 1. Das Sprichwort bei Hans Sachs: Teil 1, Verzeichnis der Sprichwörter, by Charles Hart Handschin. 1904. 154 p. 50 cents.

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No. 2. The Graecostasis of the Roman Forum and its vicinity, by Charles James O'Connor. 1904. 50 p. 25 cents.

No. 3. Latinitas and Hellenismos: the influence of the Stoic theory of style as shown in the writings of Dionysius, Quintilian, Pliny the Younger, Tacitus, Fronto, Aulus Gellius, and Sextus Empiricus, by Charles Newton Smiley. 1906. 68 p. 30 cents.

No. 4. The indebtedness of Samuel Taylor Coleridge to August Wilhelm von Schlegel, by Anna Augusta Helmholtz. 1907. 98 p. 40 cents.

VOLUME IV

No. 1. German literature in American magazines prior to 1846, by Scott Holland Goodnight. 1907. 264 p. 50 cents.

IN PREPARATION

German literature in American magazines, 1846 to 1880, by Martin Henry Haertel.

E. Science Series

VOLUME I

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: German literature in American magazines prior to 1846. Reprinted from the Bulletin of the University of Wisconsin, Philology and Literature series, Vol. 4, p. 1-264. Madison, 1907.

Haney, Lewis Henry, Ph. D., 1906.
: A congressional history of railways in the United States to 1850. Reprinted from the Bulletin of the University of Wisconsin, Economics and Political Science series, Vol. 3, p. 167-440. Madison, 1908.

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: The labor history of the Cripple Creek District. Reprinted from the Bulletin of the University of Wisconsin, Economics and Political Science series, Vol. 3, p. 1-166. Madison, 1908.

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Schaffner, Margaret Anna, Ph. D., 1902.
The labor contract from individual to collective bargaining. Reprinted from the Bulletin of the University of Wisconsin, Economics and Political Science series Vol. 2, p. 1-182. Madison, 1907.

Weinzirl, John, Ph. D., 1906.
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